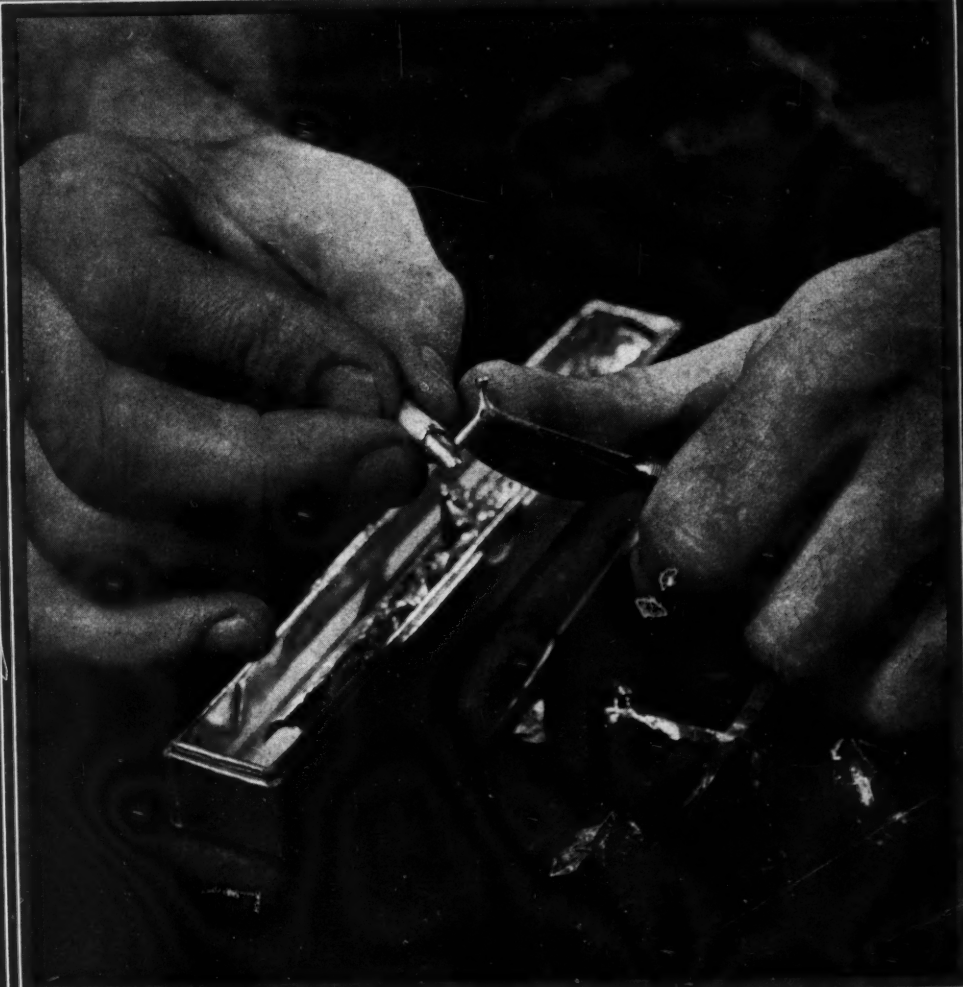


FEB 24 1943

THE  
**D E N**

19  
12-43  
100

University of Michigan,  
General Library,  
Ann Arbor, Mich.



FEBRUARY 1943

# TIME and INDIVIDUALITY



In these busy, war-filled days when literally every minute counts, you will particularly appreciate the unusual time saving and individualizing features of

## VERI-CHROME FIVE PHASE ANTERIORS

TRADE MARKS REG.



U. S. PAT. OFF.

You Will Find that their varied labial surfaces reproduce accurately the dominant factors of variability found in human teeth.

You Will Find that their scientific sizing and the interchangeability of laterals produce a wider range of variability and greatly increase your efficiency and flexibility of selection.

You Will Find that they are so easy to set up that they literally fall into place.

You Will Find that the Veri-Chrome Color Guide offers you scientific, speedy and accurate selection in your color matching.

You Will Find that these and many other exclusive features of Veri-Chrome Five Phase Anteriors assure you maximum individuality for every patient in the minimum of time.



*Specify with the  
Veri-Chrome Color Guide*

**UNIVERSAL DENTAL COMPANY**  
*Manufacturers of the Most Complete Line of Porcelain Teeth*  
18th & Brown Sts. Philadelphia, Pa. U.S.A.

# THE DENTAL Digest

VOL. 49

NO. 2

## FEBRUARY 1943

Polymerization of Individual Direct Acrylic Restorations, <i>Gregory B. Salisbury, D.D.S.</i> . . . .	60
Feeding the Aged ( <i>An Abstract</i> ) . . . .	66
Technique for the Construction of an Acrylic Fixed Bridge . . . .	67
<i>I. Franklin Miller, M.A., D.D.S.</i>	
Dowel Crown Cast Directly to a Porcelain Tooth, <i>Phillip M. Chernoff, D.D.S.</i> . . . .	70
Orthodontic Facts Versus Fallacies ( <i>An Abstract</i> ) . . . .	73
Plastic Reconstruction of Dismembered Toes, <i>R. W. Kimble, D.D.S. and R. W. King</i> . . . .	74
Dental Hemorrhage Arrested by Egg-White Derivative ( <i>An Abstract</i> ) . . . .	75
Elimination of Variables in Amalgam Manipulation, <i>Harold C. Kilpatrick, D.D.S.</i> . . . .	76
Gastroduodenal Disorders: An Important Wartime Medical Problem ( <i>An Abstract</i> ) . . . .	78
The Editor's Page . . . . .	79
Contra-Angles . . . . .	82

EDWARD J. RYAN, B.S., D.D.S., *Editor*

ETHEL H. DAVIS, A.B., *Assistant Editor*

708 Church Street, Evanston, Illinois

## About Our CONTRIBUTORS

GREGORY B. SALISBURY, D.D.S., (Temple University School of Dentistry, 1934) last month presented his preliminary report in this magazine on the APPLICATION OF METHYL METHACRYLATE TO THE MOUTH: CURED AT MOUTH TEMPERATURE. His current article is of unusual interest in that it includes photomicrographs showing polymerization at room and at mouth temperatures as well as refinements of technique. POLYMERIZATION OF INDIVIDUAL DIRECT ACRYLIC RESTORATIONS was first presented before the Delaware State Dental Society convention at the Academy of Medicine, Wilmington, Delaware, January 13, 1943.

I. FRANKLIN MILLER, B.S. (1935), M.A., D.D.S. (1936)—all at the University of Pittsburgh) wrote for us in November, 1941 about acrylic jackets. Doctor Miller who is in gen-

eral practice continues his interest in acrylics with his TECHNIQUE FOR THE CONSTRUCTION OF AN ACRYLIC FIXED BRIDGE.

PHILLIP M. CHERNOFF, D.D.S. is a graduate of the University of Pennsylvania (1922) and is likewise in general practice. In December of 1940 he published with us A NEW CONCEPT REGARDING APICOECTOMY. Doctor Chernoff returns this month with a method of eliminating discrepancies of adaptation in the construction of a dowel crown which he hopes will revive the use of this restoration.

ROBERT WALTER KIMBLE, D.D.S. is a general practitioner who is a graduate of the Chicago College of Dental Surgery (Loyola University), the class of 1936. In collaboration with ROBERT WEIL KING, a dental technician, an interesting reconstruction of a foot was made by the use of a plastic appliance. The casualties of war will make it imperative that dentists be prepared to help in such reconstructions.

HAROLD C. KILPATRICK, D.D.S. (University of Pennsylvania, 1932) is another general practitioner. Doctor Kilpatrick is an instructor in oral surgery at Columbia (since 1934) and for ten years has been interested in research in dental alloys.

Copyright, 1943, Dental Digest, Inc. See page 56 for Subscription Data, etc. The magazine is mailed on the fifteenth of the month of issue.



# Polymerization of Individual Direct Acrylic Restorations

GREGORY B. SALISBURY, D.D.S., Philadelphia

## DIGEST

Polymerization is a process that starts when the monomer is added to the polymer powder, and the process goes on regardless of increase in heat, or the addition of other agents.

When a saturated mass is used the results are similar microscopically, regardless of how the mass is cured: at mouth temperature, room temperature, or a heated flask.

Excess monomer breaks down not only the elastic membranes of polymer spheres, but the polymers themselves which it dissolves to leave a homogeneous mass.

The degree of elasticity of the restoration depends on the presence of unpolymerized spheres. Improperly cured restorations show globular polymers which have not been polymerized into compressed hexagonals with the interglobular spaces eliminated. These globules tend to revert the mass to its original shape and cause distortion.

IN ORDER TO understand the process of polymerization, it is imperative to study methyl methacrylate itself, its microscopic and macroscopic features, and the behavior of individual spheres, under the influence of the monomer liquid. This knowledge is paramount in suc-

cessful direct acrylic reconstruction, in which methyl methacrylate is inserted into cavities and allowed to cure at mouth temperature.<sup>1</sup>

## Experiments in Curing

Those who question the possibility of curing the material at body temperature, are asked to prepare a cake of methyl methacrylate in a mixing jar, and to leave it there with the jar closed. Within a limited time the cake will cure at room temperature to a specimen of excellent hardness. Microscopically, it will look like any cured acrylic specimen.

If rapidity is desired, an experiment may be repeated which has been demonstrated at various conventions: An occlusal cavity, filled with the mix (as described in this magazine last month<sup>1</sup>) is compressed with the operator's finger, for five minutes. When the pressure is released, a hardened surface will be found. After half an hour, trimming of the excess will reveal a nicely hardened restoration. Remove the restoration in a couple of days and examine it under the microscope. Compare with a cross section of an acrylic denture cured by standard means.

## Tissue Tolerance

Some may question the effect of monomer on the vital tissues. A cement base is indicated in direct acrylic restorations just as it is for silicates, which are mixed with an extremely irritating and devitalizing orthophosphoric acid. Cavities have been restored and properly insulated by the direct acrylic technique, and the restorations, after a year's service, have not produced any signs of hyperemia of the pulp.

## Advantages in Slow Curing

Slow curing in the direct technique

<sup>1</sup>Salisbury, G. B.: Application of Methyl Methacrylate to the Mouth: Cured at Mouth Temperature. DENTAL DIGEST, 49:14 (January) 1943.

(1) eliminates porosity; (2) gives extreme hardness as well as esthetics to the restoration. (3) There are no cement margins, distortions under stress, or hours of laboratory time to consider. (4) Microscopic studies prove that polymerization goes on regardless of the rise in temperature or its maintenance at room or mouth temperature.

Heat merely hastens the process, and often ruins it, by volatilizing the monomer, by production of porosity, and by introducing many other factors, which in the hands of a confused operator will only end in failure.

Confusion at present is widespread because few authors agree on any one standard technique of flask curing.

## Comparison with Other Materials

Those who may find limitations or disadvantages in methyl methacrylate as a material for restorations are asked to consider the properties of other materials:

**Amalgam**—Amalgam expands from 9 microns to 300, depending on the technique. It may shrink, causing ditching, or extrude itself, causing many accompanying difficulties. It tarnishes, and discolors the tooth. It is a ready conductor of heat and cold.

**Silicate**—Silicate restorations shrink, wash out, discolor, and are not permanent.

**Baked Porcelain**—Baked porcelain shrinks from one-third to one-sixth its bulk, and the addition of silica to make it translucent only makes it brittle. The armamentarium is expensive, and the material requires delicate handling.

**Gold Inlays**—Most gold inlays are islands of gold in a sea of cement. Excellent operators, skilled in producing fine inlays, are too high in fees for an average patient with a great deal of operative dentistry to be done. Gold is unsightly; fastidious patients constantly ask for a better looking restoration.



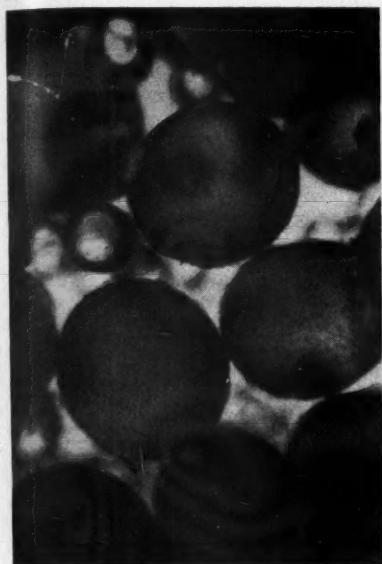


Fig. 1

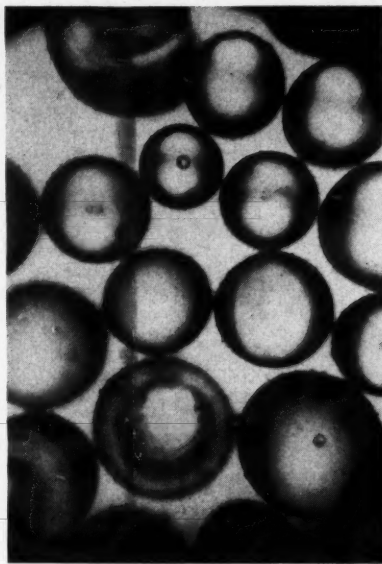


Fig. 2

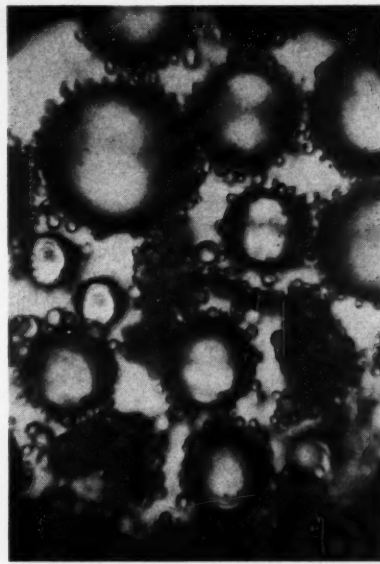


Fig. 3

### Refutation of Published Objections<sup>2</sup>

Recently an article appeared in a journal condemning the use of methyl methacrylate as a restorative material in the mouth. The circulation of the periodical forces a reply to the unjust claims of its author. Brinell hardness was questioned, volumetric changes and color permanence were questioned, and the reactions to ether in operations, acetone in diabetic patients, and oral fluids in general were condemned.

**Brinell Hardness**—Actually the Brinell hardness of acrylic restorations, is not 18-20 as given by the chemistry books. It is about 30, because of the use of fillers and opacifiers. With saliva used as a buffer, masticatory stresses have no effect on the restorations. Some of the best ball bearings are made from rubber, and the Brinell hardness of that substance is low.

**Volumetric Changes** — Volumetric changes in an acrylic restoration are balanced, as they are in gold inlays in which the expansion technique is used. Shrinkage in curing is compensated for by the absorption of water. In direct acrylic restorations, that shrinkage is taken care of by the saliva. In flasking, the material is soaked in water for a few hours prior to cementation to compensate for the shrinkage and to give

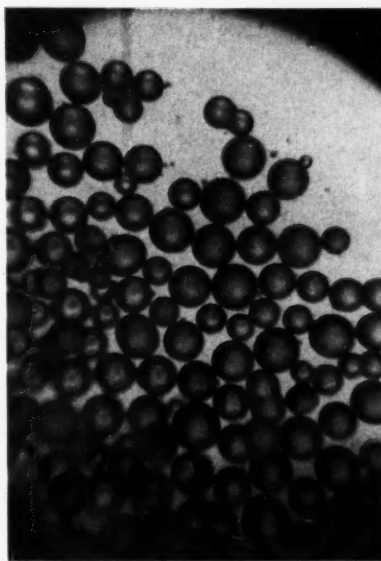


Fig. 4

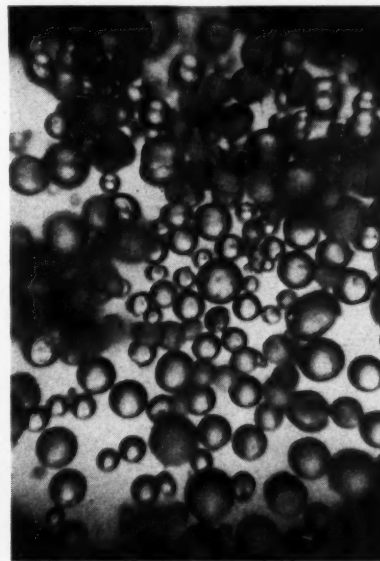


Fig. 5

### Figs. 1-5—STUDIES OF POLYMERS:

Fig. 1—Polymers of lucitone pink denture powder showing large and small mesh spheres. Great difference in size and the predominance of coarse polymers give the characteristic life-like texture to the finished denture.

Fig. 2—Polymers of crystalex clear colorless spheres studied in order to obtain a better view of globular structures. These possess, like all the other methyl methacrylate polymers, an elastic membrane. Spheres differ from lucitone in that they are of large and medium mesh, producing in a finished denture, a smooth color, if tinted. The large crystals are somewhat smaller than those of lucitone.

Fig. 3—Bootleg denture polymers. Note the presence of every type of mesh possible in methyl methacrylate, indicating a conglomeration of grindings of various brands. Note also the fine mesh polymers clinging to the elastic membranes along with the pigment. Dark, irregularly shaped masses are fillers or opacifiers. Plasticizers also cling to the membranes of the spheres, preventing proper action of monomer on polymers.

Fig. 4—Tooth shaded polymers of plasticchrome. These are fine mesh spheres fairly close to the hue-lon size, although clinically the mesh seems finer. The smoother feel to the touch may be due to the presence of plasticizers.

Fig. 5—Tooth shaded polymers of hue-lon. There are various sizes of fine mesh crystals. Note some of the extremely small spheres. This specimen was used in the next set of studies.

<sup>2</sup>Saffir, J. A.: Evaluation of Acrylics for Masticatory Surface Restorations, J. A. D. A. 29:2226 (December 1) 1942.

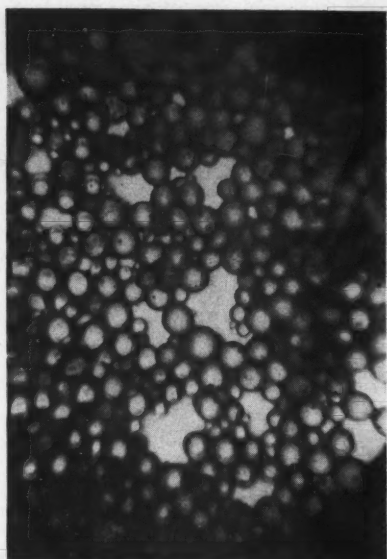


Fig. 6

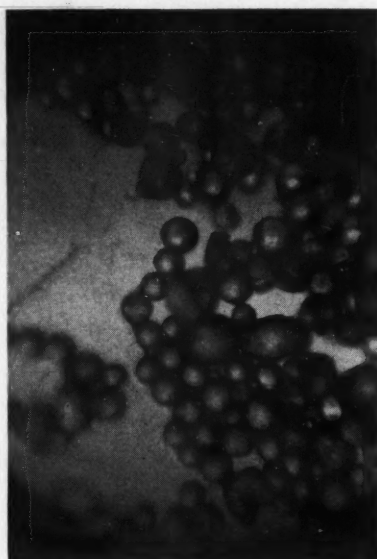


Fig. 7



Fig. 8

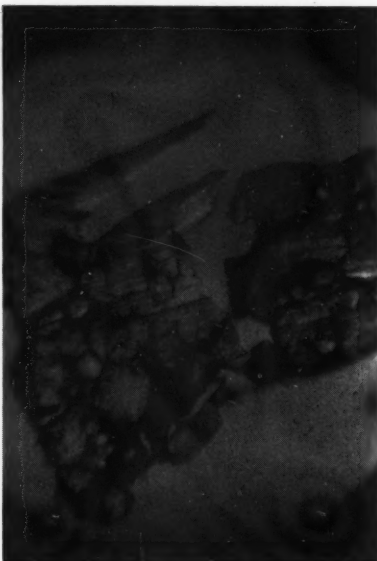


Fig. 9

Figs. 6-9—MICROSCOPIC STUDIES OF DIRECT TECHNIQUE

Fig. 6—Tooth shaded acrylic (hue-lon) saturated with monomer. Appearance of polymers was that of wet sand. Careful inspection will reveal droplets of liquid sticking to walls of spheres. These spheres immediately bunch up to create one mass.

Fig. 7—Wet sand mix at end of one minute. Either a glass slab or a mixing jar may be used. This view was taken just before the mass was inserted into the cavity. Note rapid action of monomer on fine mesh polymers after mixing. Most of the spheres show some effect of the attack. Some of the membranes may be etched, distended, like cooked berries in a sirup. Many are partly dissolved and the appearance of the spheres is irregular.

Fig. 8—Direct acrylic restoration after five minutes in the mouth. Individual spheres have had their elastic membranes at least partly dissolved away, and they have lost their spheroid shape. They are now hexagonal and are compressed by others forming one solid mass. Inter-globular spaces have been generally obliterated by densely packed polymers.

Fig. 9—Two shavings from a direct acrylic restoration. These were mutilated by instrumentation during their removal. Closely knit hexagonal polymers may be seen; no porosities are revealed. Spaces near periphery are due to burs and chisels. Compare with specimen of denture cured by orthodox flask method. This restoration was three months old.

the material its necessary water absorption. After that it will not absorb any more water, which might cause distortion in a finished case, if the case were cemented immediately. Softening of the material in the mouth does not occur as that author contends. Heat of 257°F. is required for softening of the material to occur, which is too hot for any mouth. Heat produced by instrumentation should not be increased in the first place, as all authors agree on lubricating the surface with cocobutter prior to the use of the engine.

**Color Changes**—Color changes do not occur, unless the restoration is porous and it absorbs whatever enters the mouth. This is due to a faulty technique.

**Reactions to Ether and Acetone**—The application of vaseline to the restorations will prevent any action of ether during operations. Acetone liberated by diabetic patients has not disturbed acrylic restorations in my experiments. Any disintegration of the acrylic restorations was due to faulty restorations, improperly made, so that disintegration would have occurred in any mouth. A check of acrylic dentures worn by diabetic persons shows no changes.

### Characteristics of Properly Cured Acrylics

For the sake of brevity, solely academic features of the material will not be considered. Properly cured acrylics, such as slowly-cured and flaked acrylics, or the direct acrylic restorations, show the following characteristics: (1) unbreakability under oral stresses; (2) normal resilience and wear; (3) compensatory water absorption; (4) no marginal seepage on removal; that they are (5) inert to metal inserts, food, oral secretions; (6) non-injurious to mucous membrane; (7) easily kept clean; (8) easily manipulated and molded; (9) the hardest of the thermoplastics; that they have (10) wide color possibilities; that they are (11) transparent to 92 per cent light; (12) odorless and tasteless; that they (13) retain color indefinitely; that they show (14) no fungous or bacterial growth; no deterioration; no jarring; and they have (15) half the weight of porcelain.

### Composition

Structurally methyl methacrylate is



Fig. 10

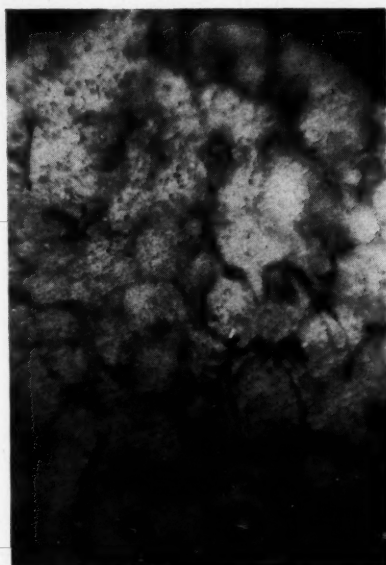


Fig. 11

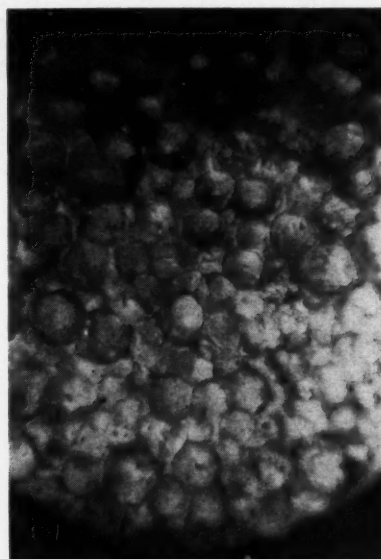


Fig. 12

**Figs. 10-13—COMPARISON OF CURED SPECIMENS:**

Fig. 10—Shavings from a direct acrylic restoration inserted in a model tooth and cured at room temperature. This specimen is a week old. It is slightly out of focus and curled; but with careful inspection, hexagonally shaped cured methyl methacrylate will be seen.

Fig. 11—Cross section of an acrylic denture, properly flask-cured. Note similarity of photomicrographs 9 and 11. There is the same obliteration of interglobular spaces, compactness, and hexagonally shaped polymers. There is no homogeneous mass and crystals retain their individuality if not their shape.

Fig. 12—Plastic cake of residue, cured and hardened in a mixing jar, after one and a half months at room temperature. Compare with Figs. 9 and 11. Clinically the cake was extremely hard and smooth. An extremely thin edge broke off under pressure, but did not bend.

Fig. 13—Week-old, hardened plastic residue. This mass was somewhat elastic and did not possess the hardness of the previous specimen. Note presence of many spheroids, which have not been altered in shape, and are only partly polymerized. This causes unfavorable behavior of acrylic restorations, because a partly cured mass tends to revert to its former status and produces distortions.

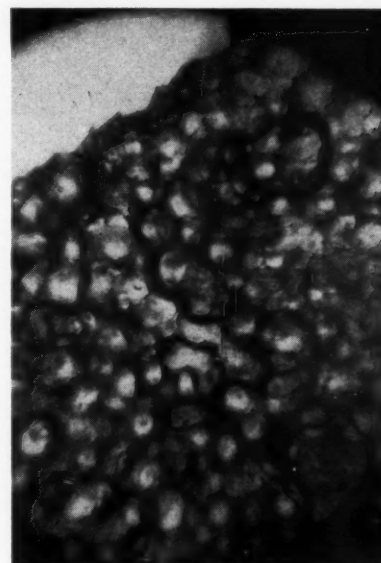


Fig. 13

composed of polymers which are hard, colorless spheres, regularly formed, and, if tinted, show pigments stuck to the elastic membranes or scattered in the interglobular spaces along with fillers and opacifiers. In "bootleg" acrylics, spheres differ from these by the irregularity of the mesh, by the amber or bluish tint seen under the microscope instead of the clear polymers, and by the oiliness to touch, owing to the plasticizers. These plasticizers are added to the commercial grindings to prevent the material from sticking to the molds. In dentistry this is detrimental, because it

prevents complete polymerization. The oily substance sticks to the elastic membrane of the sphere and prevents the monomer from acting properly. These plasticizers are partly removed by baking, but enough remain to cause distortions and inconstant results. Partly polymerized acrylic will have a tendency to regain its independent spheric shape, and distortions will follow.

**Polymerization**

Polymerization is a chemical process in which there is a union of two or more like molecules, to form another com-

pound having the same proportion of elements but a different physical character and greater molecular weight. In dental uses of methyl methacrylate the intimate junction is between polymeric monomethacrylic acid esters and monomeric methacrylic acid esters. A moldable mass results. According to the present knowledge, the product, by virtue of its being thermoplastic, is moldable and cured by heat. This is hastened by ultraviolet and dioxides, and is inhibited by hydroquinone. According to my observations, polymerization goes on regardless of heat, and heat only



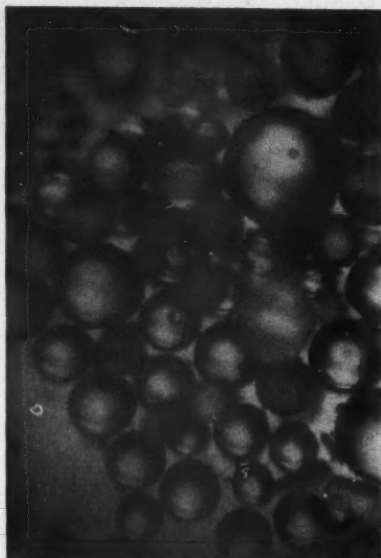


Fig. 14

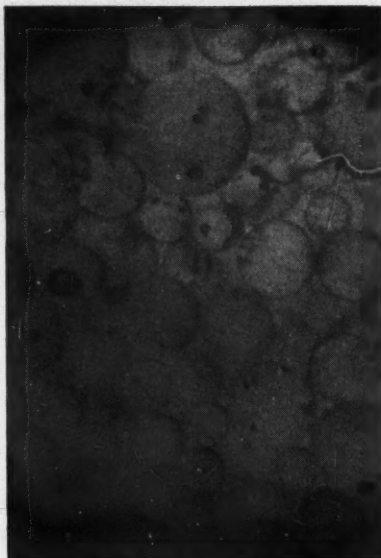


Fig. 15



Fig. 16



Fig. 17



Fig. 18



Fig. 19

**Figs. 14-27—STUDIES OF POLYMERIZATION AT BODY TEMPERATURE AND UNDER PRESSURE:**

Fig. 14—A thin specimen of clear crystolex was used for convenience of observation of large, uncolored crystals. This photomicrograph shows addition of monomer to the polymers. Note bubble formation caused by reaction.

Fig. 15—One minute later. Membranes have become thin, because of dissolving action of monomer. There are many droplets on surface of elastic membranes, carrying on attack.

Fig. 16—Five minutes after addition of monomer. Some of the spheres are beginning to lose their roundness. Several are egg shaped. Many exhibit "eaten out" areas, caused by partial solution of elastic membranes. This and the following photomicrographs were taken near the edge of the specimen in order to study individual reactions of the spheres, which was difficult to do in a mass of spherules.

Fig. 17—Eight minutes after addition of monomer. This study of the fringe in presence of excess monomer shows the breaking down of the spheres. Excess monomer in this spot has not only dissolved the membranes but the spheres themselves. Many are in partial solution.

Fig. 18—Ten minutes after addition of monomer. Dissolving action of excess monomer is evident. Note various stages of solution of spheres, ranging from swelling of membranes to final breakdown of polymer itself.

Fig. 19—Twelve minutes after addition of monomer. A crater-like opening has been formed in a polymer where its membrane and a portion of polymer itself have been dissolved. Although in partial solution, crystals are retaining their vague shapes.

Fig. 20—Fifteen minutes after addition of monomer. This is a view of main mass of specimen. Interglobular spaces are filling in with plasticized polymers whose elastic membranes have been dissolved. Although in partial solution crystals are retaining their vague shapes and are being compressed into hexagonal outlines as previously described.

Fig. 21—Seventeen minutes after addition of monomer. This is a study of the edge of partly polymerized mass. Note the way plasticized mass has filled in the interglobular spaces. There are several spheres in the picture which have not yet broken down.

Fig. 22—Eighteen minutes after addition of monomer. Note many craters in this photomicrograph. These are openings in the spheres caused by the solution of the membrane. Excessive monomer has dissolved one section of the specimen, and no individual masses can be seen.

Fig. 23—Twenty minutes after addition of monomer. This photograph shows the remains of the elastic membranes on the surface of the polymerized masses of spheres, which have now coalesced. Note filling in of interglobular spaces.



Fig. 20



Fig. 21

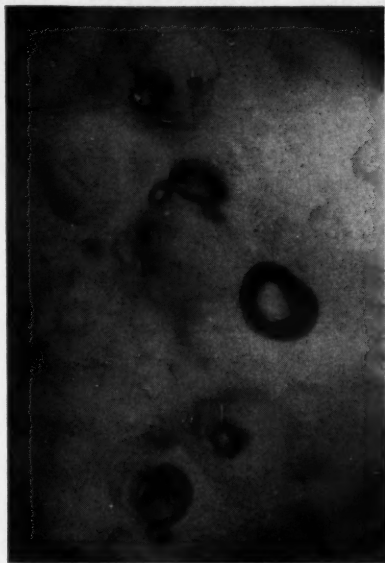


Fig. 22



Fig. 23

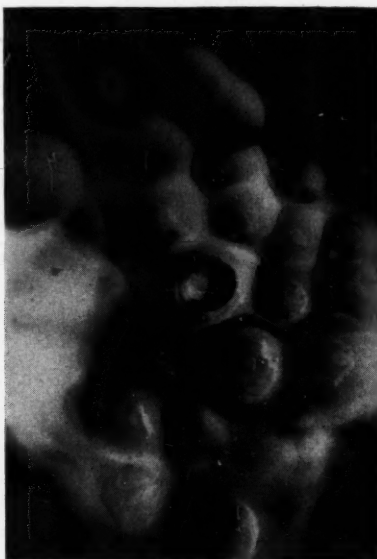


Fig. 24



Fig. 25



Fig. 26

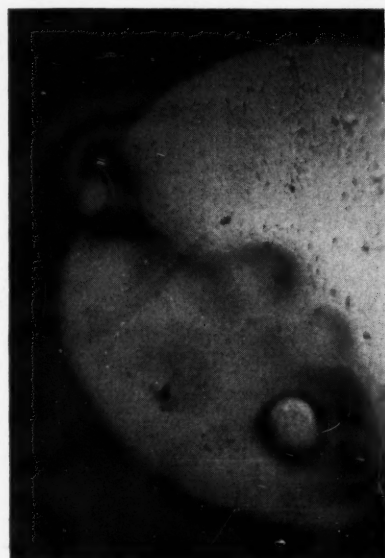


Fig. 27

Fig. 24—Twenty-two minutes after addition of monomer. This is a fine presentation of polymerized mass, showing crinkled remnants of elastic membranes on surface of hexagonally shaped polymers.

Fig. 25—Twenty-four minutes after addition of monomer. Another view of the specimen. Note the homogeneous and completely dissolved section of the mass; also disappearance of the elastic skins.

Fig. 26—Twenty-five minutes after addition of monomer. Compare with Figs. 8, 9, 11, and 12. All spheres have become hexagonal owing to loss of membranes and compression. All spheres coalesced into one mass; this mass is similar to the specimens which have been cured.

Fig. 27—Twenty-four hour specimen examined at the fringe. Here the excess monomer destroyed individual polymers and formed a homogeneous mass. At the border of the specimen several globules still persist in their altered polymerized state. Note two craters, showing loss of elastic membranes and polymerized contents of spheres.

hastens the process. Body temperature and even room temperature will suffice, and the result of the polymerization will always be the same. Time is the only variable for the complete curing.

### Experiments Illustrated

In my experiments, several sets of studies were made: One set (Figs. 1, 2, 3, 4, 5) represents the studies of polymers with a mesh of various sizes. An-

other set covers the direct technique (Figs. 6, 7, 8, 9). The third group is a comparison of cured specimens (Figs. 10, 11, 12, 13). The last group, or the study of polymerization at body temperature and under pressure, covers the remaining photomicrographs. These studies were conducted at an artificially raised temperature by means of projector and heating bulbs. The specimen, once treated by the monomer, was

covered by a cover slide which was held down under pressure. One section of the specimen received saturation; the other, an excess of monomer in order to study and to photograph the difference in behavior. Large colorless crystals were used to facilitate observation and photography.

Chatham Court, Section B.

## Feeding the Aged

(An Abstract)

[Edward L. Tuohy: Special Article, J. A. M. A. 121:47-48 (January 2) 1943.]

AGE IMPOSES certain deprivations—appetite, digestion, absorption—so that, even when a reasonable diet is consumed, certain deficiencies result. This may well occur even when obesity is present.

The mouth (including the tongue, lips and fauces) has become the nutritional barometer:

1. Ivy states that gastric acidity slows up after 20, achlorhydria increases considerably after 40; by 65, 35 per cent of people do not secrete acid after a meal and 28 per cent show no response to histamine.

2. Those losing their teeth frequently go through a period of adjustment to dentures when appetite slumps and sub-nutrition ensues. Lower dentures are rarely secure. Sturdy square jawed people accommodate well to dentures, whereas neurotic and anxious persons with natively poor bites or narrow receding mandibles find themselves unhappy. The former, with artificial dentures, say, "These store teeth are better than my own." The latter try one dentist and denture after another.

3. Is diet at fault? Weston Price<sup>1</sup> thinks so. He has gathered information from around the world. The illustrations alone would seem to prove his thesis: Native peoples (on the most varied source foods), when they get a balanced food and avoid overrefinement of flours and sugar excesses, bear chil-

dren with properly formed jaws; the teeth are regularly spaced and both gums and teeth survive. On the contrary, as soon as they move to a region where overrefined carbohydrate in excess is available, they promptly lose their teeth. The story is the same whether it concerns the cloistered group in the upper valleys of the Swiss Alps, the Hebrides Islands, African jungle tribes or our Eskimos and Indians.

4. On the other hand, this thesis has so far little support from our leading dental colleges: Vern Irwin<sup>2</sup> has collected a questionnaire from eight teachers holding professorships in basic university departments of medicine and dentistry in the United States. Five questions were posed bearing on caries and pyorrhea alveolaris, resistance thereto, the effect of diets on pregnant women, the babies' teeth, dentition and general development. Opinion or belief that diet was of little import shaded into the belief expressed by a few that nutrition was the basis of all caries and pyorrhea. I believe that this is one of the most pressing nutritional problems before us today. The lack of unanimity I mention is little short of alarming. The dental and medical professions have drifted too far apart.

5. Twenty per cent of the first draft recruits could not qualify because of inadequate teeth. Surely something is wrong, and it seems to involve diets.

6. Bleeding gums are controlled in most people by adequate citrus fruits;

Vincent's infection is an avitaminosis: when tissue dies the Vincent's organisms multiply. The deeper deprivations that come from faulty absorption from the gastro-intestinal tract or from diarrheas are pathologic. At the same time we do not know to what extent the age factor produces alterations of absorption and metabolism, so that it is not possible to assimilate all the essential vitamins and minerals, even from a diet that is adequate. There is a good field here for vitamin reinforcement.

### Dietary Suggestions for the Aged

1. Elderly people should start the day with a good breakfast. It should include some substantial protein, and whatever else depends on body weight and activity. Protein adequacy must be maintained at all ages.

2. As effort lessens and sedentary life supervenes, weight rise or fall should dictate the proportion of carbohydrate taken, and as much of this as possible should be from whole grain. While bran is objectionable, cracked wheat products are not. Enriching flour may be a good expedient but the objection to dark breads should be lived down. Potato is the next best starch.

3. For the obese, vegetables and fruits should act as the "fillers" and provide appetite and zest for eating by meticulous preparation and serving.

4. The elderly should eat fat sparingly, even as the middle aged should use it cautiously. The high cholesterol

(Continued on page 75)

<sup>1</sup>Price, W. A.: Nutrition and Physical Degeneration, New York, Paul B. Hoeber, Inc., 1939. See also DENTAL DIGEST, 39:94 (March); 147 (April); 205 (May); 225 (June); 266 (July); 308 (August) 1933; 40:59 (February); 81 (March); 130 (April); 210 (June); 232 (July) 1934.

<sup>2</sup>Irwin, V. D.: Nutrition and the Teeth, Northwest Dentistry 20:201 (October) 1941.



# Technique for the Construction of an Acrylic Fixed Bridge

I. FRANKLIN MILLER, M.A., D.D.S., Pittsburgh

FAILURES in the use of acrylic resin may be due to an improperly prepared abutment, such as one conically shaped or too severely tapered; absence of a shoulder; an incorrect die for processing; indifferent temperature control.

## Principles of Construction

1. The abutment preparation should be so planned as to have as much frictional retention as possible along with a well defined shoulder.

2. All preparations should permit as much bulk of material as is consistent with good operative procedure.

## DIGEST

Each step of the procedure for a four-tooth acrylic fixed bridge with gold reinforcement is illustrated in the sequence of its construction in office routine.

Esthetic as well as functional satisfaction warrants the continued use of this restoration.

The principles of construction are also outlined.

3. All processing should be done directly on copper plated dies.

4. Polymerization of the monomer with the polymer should continue at least forty minutes before such cases are packed.

5. The packed case should be put into room temperature water, brought to 160° F. in thirty minutes' time, and allowed to remain there for one hour. The case is then brought to 180°F. for thirty minutes, then boiled for thirty minutes, and finally bench-cooled.

6. Finishing should be done with round burs and steel discs at low speed.

7. Polishing should be done with



Fig. 1—The problem. The patient had worn a base metal clasp removable bridge for about one year. Note that the bridge was placed with the two abutments having old amalgam restorations with recurrent caries. No attempt had been made to correct this condition



when the bridge was made. In the meantime decalcified areas developed beneath the clasp arms.

Fig. 2—Abutments prepared with shoulders. All caries removed and replaced with copper cement.



Fig. 3—Two impressions taken and copper plated. Fusible metal, melting point 225 degrees, is used instead of stone to fill copper plated impressions. Stone cannot be satisfactorily recovered after the case has been invested and processed.



Fig. 4—Base-plate gutta-percha copings cemented to place with zinc oxide and eugenol used to protect abutments between appointments.

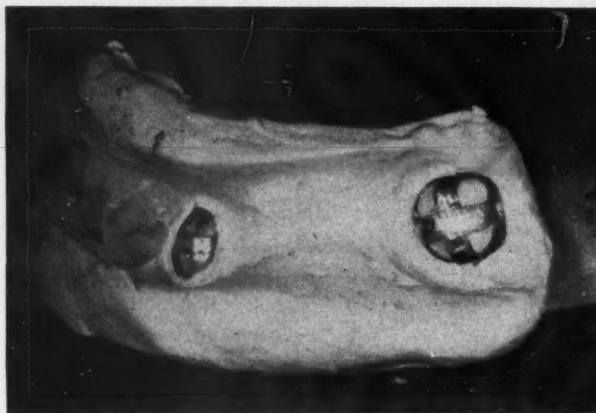


Fig. 5—Cast gold copings are made of a design to suit the individual requirements of the case. These are seated on the abutments and a plaster impression is taken.



Fig. 6—A cast of a soldering investment material is made. Reinforcement bar is adapted and soldered to abutments, directly on this cast.



Fig. 7—Unit placed in the mouth.

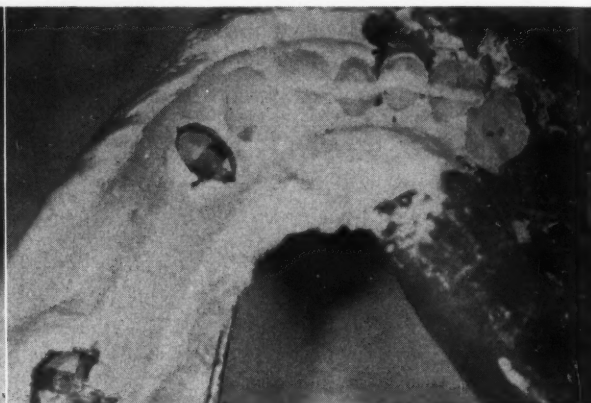


Fig. 8—Impression of entire mouth is taken with soldered unit in position.

To simplify this procedure the other half of the impression may be taken in wax and the area to be restored, in plaster.

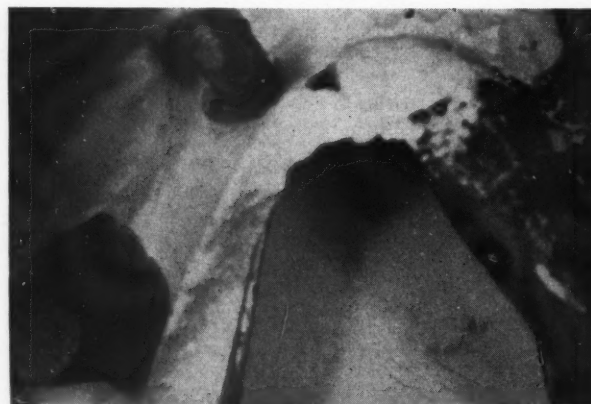


Fig. 9—Dies are seated into position in impression.

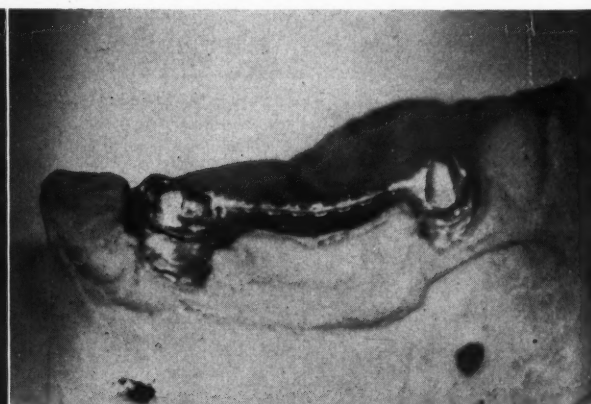


Fig. 10—Cast is prepared, ready for waxing. Tin-foil matrixes should be placed over copper plated dies under gold copings.

brush wheels and pumice, and the high shine accomplished with flannel wheels and tin oxide. A slow motor is used.

High speed and rag buff wheels should never be used.

8. To preserve the margin of any

type restoration, finishing and polishing must be done on the die.

412 Medical Arts Building.

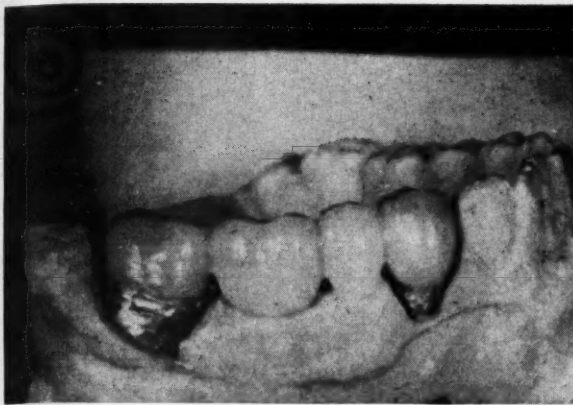


Fig. 11—White wax should be used to wax the completed bridge.  
Fig. 12—Completed bridge. Restoration cemented in the mouth.  
The cementation technique is routine. (The steps of procedure for

the application of the acrylic material will be found in the November, 1941, issue of the DENTAL DIGEST.)

## *We Can't Pay You, But—*

No dental author can ever be *paid* for a valuable technical or scientific article. The value of such material is above a monetary basis. In the preparation of a technical article, however, an author often expends money for drawings, photographs, models, typing, and other material services. We would like to help defray some of these expenses.

Beginning February 1, 1943, and until further notice, the author of *every* article accepted for publication in The DENTAL DIGEST will receive \$25.00 to offset some of his expenses in preparing material for publication.

Before the year is out about 20,000 of our dental colleagues will be in military service. Few of them will have the time, the facilities, or the opportunities to develop new techniques or to write for the dental literature. They will be eager, however, to read of the new developments in dental science and art.

Writing articles for publication in technical journals can be a contribution to the war effort, because that is how to help our dental officers in the Army and Navy keep abreast of technical advancements, and it is one way to improve the skill and services of civilian dentists on the home front.

If you have a constructive idea, an innovation, a new result of tried and proved experiment, put it down in writing, illustrate it, and send the material to: The Editor of The DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

*We hope that you will accept this invitation!*



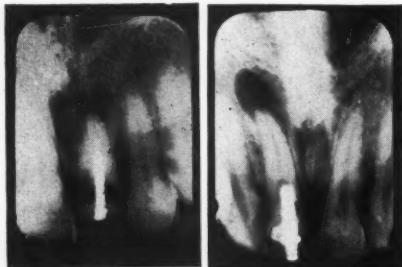
# Dowel Crown Cast Directly to a Porcelain Tooth

PHILLIP M. CHERNOFF, D.D.S., Middletown, Connecticut

## DIGEST

The dowel crown lost favor with the profession because of a careless technique in the application of the dowel principle. The idea presented here eliminates discrepancies of adaptation and makes possible a simple construction of a sturdy and economical restoration of pleasing appearance.

THE PRINCIPLE of the dowel crown is sound and should not be discarded. Considerably stronger than a porcelain jacket crown, it has the additional advantage of practicability when too little tooth structure remains to support a porcelain jacket. Some years ago the dowel-type crown was a popular means of restoring broken or excessively discolored pulpless teeth. Its loss of favor in recent years may be attributed to an unscientific technique in its construction. Its faults were usually those of inaccurate adaptation of the crown to the root, which resulted in a wide cement band; and the use of a canal post which for complete reception was necessarily too small for the canal. The post being thus ill-fitted, too much reliance was placed on the cement for retention.



Figs. 1 and 2—Roentgenograms showing ill-fitting post. Too much reliance for retention was placed on the cement.



Fig. 3—Root ground to a plane well underneath free gingival margin. (Photography for this article was done by Harry L. Beach of Meriden, Connecticut.)

The technique for the cast dowel crown presented here eliminates discrepancies of adaptation between the crown and root and between the dowel and canal walls.

## Technique

1. The root is ground to a plane well underneath the free margin of the gums (Fig. 3).

2. A detached post crown of proper mold and shade is selected and is ground to approximate the root underneath the gingiva. The adaptation need not be in juxtaposition; on the lingual, particularly, the discrepancy may be considerable.

3. Enlarge the root canal lengthwise and laterally, first with round burs and then with fissure burs; but always guard against perforation or undercuts; bear in mind that the canal must be slightly tapering gingivally (Fig. 4).

Finish with a large tapering fissure bur or a small tapering carborundum point to make the orifice oval in shape. This will insure perfect seating of the finished restoration and prevent deviation from its correct position when the crown is seated.

4. Oil the sides of the canal and the ground surface of the root. Soften a bit of inlay wax and force it into the canal. To insure perfect adaptation, heat a pointed instrument and insert it into the wax, carrying it well into the



Fig. 4—Canal slightly tapered gingivally.



Fig. 5—Wax carried well into canal with heated pointed instrument. Post hole of the porcelain crown is filled with molten inlay wax.



Fig. 6—Root surface covered with additional wax flowed over entire ground surface. A bit of sticky wax is also placed on top of inlay wax.



Fig. 7—Crown pressed quickly and firmly to place before wax congeals.

canal (Fig. 5). Do not leave the wax flush with the root but cover the root surface with additional wax flowed over the entire ground surface (Fig. 6).

5. Without oiling it, fill the post hole of the porcelain crown with molten inlay wax. Over this melt additional wax. At this point also, a bit of sticky wax may be placed on top of the inlay wax (Fig. 6).

6. With both the canal and post hole thus filled with wax, it is necessary only to touch both lightly with a hot spatula, and, before the wax congeals, press the crown quickly and firmly to place (Fig. 7).

7. After the crown is held in place for about ten seconds, the wax is chilled with cold water. While the crown is still held in place, the excess wax is trimmed off with an explorer by carrying it under the gingiva and around the tooth (Fig. 8). The interproximal trimming need not be exact at this time and may be better trimmed after casting.

8. Remove carefully by drawing on the crown directly outward, the pull being in line with the direction of the canal. The post hole of the crown holds the wax securely. If there are no undercuts in the canal and if the orifice has been properly enlarged the wax pattern will not break and will come out intact.

9. Sprue by carefully building a knob or ball of sticky wax on the tip of the canal pattern, and insert the sprue wire into this knob (Fig. 9). The sprue wire may be attached either in line with the canal pattern or at an obtuse angle.

10. Invest the whole. The gold is cast directly to the porcelain. Casting directly into the post hole locks the crown and dowel together. It is now for practical purposes a one-piece restoration which requires only a little trimming and cementation into the root (Fig. 10).

#### Comments

The completed restoration is shown in Fig. 11. This type of restoration is particularly advantageous in cases such as the one illustrated in which all the anterior teeth are spaced.

To be sure the operator must be certain that retention of the root is not to be detrimental to the health of the pa-



Fig. 8—Excess wax trimmed off with explorer. Explorer is carried under the gingiva and around the tooth—with the crown held firmly in place.



Fig. 9—A knob or ball of sticky wax is built on the tip of canal pattern, to sprue. Sprue wire is inserted in this knob.

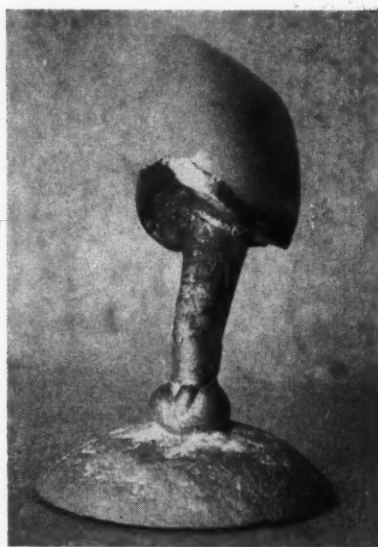


Fig. 10—Casting is done directly into post hole, which locks the crown and dowel together. Trimming and cementation into root are all that remain to be done.



Fig. 11—Completed restoration.



Figs. 12 and 13—Before and after apicoectomy.



Figs. 14 and 15—Note how well restoration fits root.



Fig. 16A

Fig. 16—A, Incomplete and poorly condensed root canal filling; B, root canal refilled; C, immediately following apicoectomy; D, periapical healing.





Fig. 16B



Fig. 16C



Fig. 16D

tient. It is for this reason that I invariably perform an apicoectomy (Figs. 12 and 13) on every pulpless tooth retained. I believe that the most direct

and most satisfactory periapical therapy is surgical.<sup>1</sup>

In the accompanying roentgenograms, Figs. 14 and 15, it will be noted

how perfectly the restoration fits the root. It is in absolute juxtaposition in both internal and external relationships to the root, with an absolute minimum of dependence on cement.

**CAUTION:** Do not allow the wax pattern to overlap onto the porcelain crown. Overlapping may check the porcelain during the cooling period after the casting. Trim the wax flush with the edge of the crown and there will be no breakage.

360 Main Street.

<sup>1</sup>Chernoff, P. M.: A New Concept Regarding Apicoectomy, *DENTAL DIGEST*, 46:415 (December) 1940. The Surgical Treatment of the Pulpless Anterior Tooth, Connecticut State D. Bul. 17:29 (November) 1940.

## Orthodontic Facts Versus Fallacies

(An Abstract)

[John V. Mershon: *American Journal of Orthodontics and Oral Surgery*, 28:475 (August) 1942.]

"TOO MUCH AND TOO SOON" might be the phrase by which to describe the basis of wrong orthodontic practice. It is desirable to correct deformities as soon and as quickly as it is possible to do so with safety. It is better to do nothing, however, than to do harm. Orthodontic efforts are not worth much if the patient is left with a mouth full of caries, with devitalized teeth, resorbed roots, and injured gingival tissues.

What is it which brings a normal human being, barring accident or physical handicap, to a satisfactory maturity? It is development. Growth coupled with differentiation results in development. It is this which causes teeth to change their positions, not our appliances. Growth processes cannot be altered to suit our whims. But we can study them and use them to help us accomplish the desired result. Orthodontics is not a tooth problem but a growth problem.

The full growth and development of the average person is not reached until the early twenties. How, then, can we hope to finish one part of an organism, namely, the mouth, before such a time, bearing in mind that we are dealing with a defective person in whom growth has gone wrong? Our sole function as orthodontists is not to attempt to create growth (because we

cannot do this), but to try to direct it. We can do nothing without the help of growth which goes on regardless of us. The fact that one case looks just like another but takes many times the effort to correct shows the rôle of growth processes in treatment. The presence of spindly legs, curvature of the spine, and other associated symptoms, immediately and unconsciously suggests to the orthodontist a fragile alveolus which will make every step in orthodontic treatment a difficult one.

### How to Treat

The simplest appliances, used for the shortest possible periods of time, constitute the best orthodontic treatment. On one end of a tooth we place a machine known as an orthodontic appliance. On the other end is a living, growing, ever-changing tissue, part of a human being. Which is going to win?

The first thing which comes to some men's minds when they look at a crowded mouth is extraction. They reason, falsely, that there are too many teeth for the size of the jaw. They overlook the fact that the teeth are as large as they will ever be but the jaw will go on growing and developing until maturity. Orthodontics must be considered in the light of the entire face and not of the oral cavity alone. We must have a

long experience before we realize that we must visualize patients at 30, 40, and 50 years, and not just at the time they are under our care.

### Retention

The term retention should never have come into the orthodontic vocabulary. It implies fixation; whereas it is nothing more than a continuation of treatment and a stage in treatment, and it should be so understood. If we have the right concept of what causes teeth to move and of the way in which we effect our corrections, we will find no need of "retaining" appliances. Their use is based on the fallacious theory that the tissues, bone in particular, are comparable to soft cement; that the teeth are moved through the yielding tissues to the desired positions; that if they are then held long enough in these new positions, the tissues will "set" around the teeth and hold them there. If treatment has been compatible with the growth changes of the tissues, no retention will be needed. If not, no amount of retention will hold the teeth in new positions. Sooner or later the appliances must be removed. The sooner this is done, the sooner will it be known to what degree treatment has been in the right direction.

# Plastic Reconstruction of Dismembered Toes\*

R. W. KIMBLE, D.D.S., Wauseon, Ohio and R. W. KING, Montpelier, Ohio

## DIGEST

The functional properties of the foot of a patient whose four toes were dismembered in an accident were restored by means of a plastic appliance which enabled the patient to pass qualifications for the Army.

The method of constructing the appliance is outlined and certain practical precautions are suggested.

THE FUNCTIONAL properties of the foot of a patient whose four toes were dismembered in a clam-shell accident were restored by means of a plastic appliance which enabled the patient to pass qualifications for the Corps of Engineers, U. S. Army.

The muscle attachments of the remaining great toe were severed in such a way that on healing the toe was drawn laterally, or to the medial line of the foot, as shown in Fig. 1.

## Construction of Appliance

1. In constructing the appliance soft bee's wax was molded into the toe of the shoe, removed, and cut to the proper length so that the appliance would not impinge on the great toe.

2. Soft bee's wax was then molded to the ball of the foot, and while still soft, placed in the shoe. The patient was asked to walk, so that an exact impression of the foot and the inside of the shoe might be had.

3. After this impression cooled, both pieces of wax were removed.

4. Base-plate wax was then used to connect the bee's wax to the base in which a ball socket connection was made.

\*Editor's Note: This article is published in a dental journal because dentists will likely take an increasingly important part in the restoration by prostheses of missing bodily parts. Dentists should be prepared to help in the restoration of many of the casualties of war.



Fig. 1—Appearance of foot after toes were dismembered.

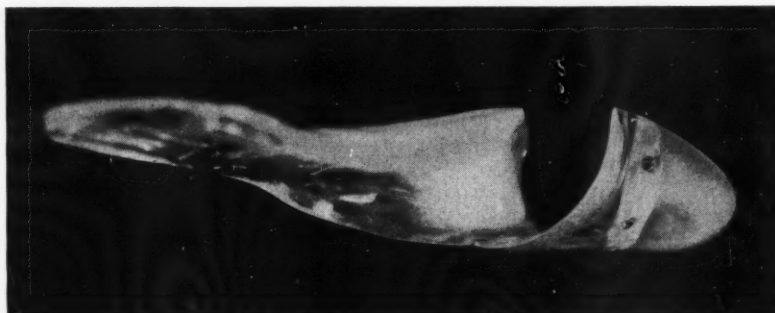


Fig. 2—Plastic appliance constructed to restore functional properties of foot.

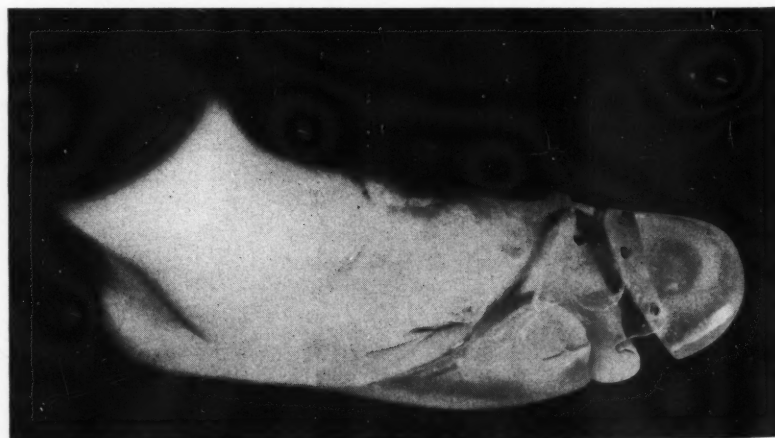


Fig. 3—Foot with appliance in place.

5. The appliance was processed in three pieces: the toe, top plate, and the base; and was made of a clear dental

plastic material. The toe and top plate were connected by screws to the ball socket of the base as shown in Fig. 2.

## Comments

1. In the construction of appliances made from rigid, hard materials (including the plastic materials), extreme care must be taken that the appliance does not rest upon joints and prominent bony structures. Enough fat and muscle tissue must be available to give a cushion and pad to the part involved. Circulation must not be restricted. In the case described here the dorsalis pedis artery, venous blood return, as

well as interdigital circulation, would have to be kept unrestricted.

2. Scar tissue presents another problem. Unless the appliance is so designed, that the scar does not come in contact with the appliance, the appliance will in most cases be uncomfortable to the wearer. In cases in which the appliance is in contact with scar tissue, severe and painful calluses (tylomata) may form and the appliance may not prove satisfactory.

3. Another point of importance from a practical application is the maintenance of freedom of motion, so that the function of the part can continue as freely as possible. In securing the desired freedom of motion, the appliance will sometimes have a tendency to rub the skin. To prevent this, it may be necessary to incorporate rubber, chamois, or other soft material to act as a protecting agent.

Box 204.

## Feeding the Aged

(Continued from page 66)

sources (egg yolk, cream and animal fats) should probably be curtailed wherever body build, family history and other indications portend atherosclerosis. It is the one decisive indication for dietary restriction after full stature has been attained. The danger of high blood cholesterol is not universal.

5. Tea, coffee and alcohol are useful stimulants. The abuse of alcohol places

it for some people in the category of both refined carbohydrate and animal source fat. As a vasodilator it inspires as well as flushes the aged. One cannot say as much for tobacco. It soothes and cuts off circulation. The quiet postprandial puff is rapidly becoming a continuous process. Tobacco is safer after 60 than before, because age has by that time made the blood vessels less elastic and labile.

6. Food and water (hot drink) taken at regular intervals revive the old. Food becomes the best sleep producer even

though early wakefulness follows. Fruit juices add to the needed vitamin content.

7. Hunger lessens as age advances. Foods useless as calories (condiments, broth, relishes) have a place. The teeth, gastric acidity, probably absorptive powers, vitamin storage—all begin to fail with age. We are able to compensate for these losses with vitamins, iron, calcium, hydrochloric acid, and a balanced diet.

8. The mouth becomes the nutritional barometer of health.

## Dental Hemorrhage Arrested by Egg-White Derivative\*

[C. P. Blackmore Reed, L.D.S. Eng.: British D. J. 73:311 (December 18) 1942]

THREE CASES are reported in which an egg-white derivative was administered orally to arrest dental hemorrhage in patients with either hemophilia or excessively slow clotting time.

In the first case subsequent hematologic investigation revealed no abnormality of the blood and no history of a hemorrhagic tendency either hemophilic or purpuric.

The drastic step of a clearance of twenty-seven teeth from a septic mouth could not have been undertaken in this case without hemorrhage control, which acts *in vivo* by increasing the natural power of the blood to clot. Also a marked but temporary decrease in oral sepsis was observed, possibly owing to bactericidal action of the egg-white derivative.

In the second case the patient had been having (voluntarily) a number of

injections of experimental egg-white products—coagulant and anti-coagulant—with the object of verifying observations by Doctor Timperley, regarding the effect on clotting times, and particularly on the structure of the clot.

In the removal of loose pieces of carious crown, there was a little primary bleeding but it soon stopped. Later, owing to an unavoidable delay in getting a supply of the coagulant egg-white material there was profuse hemorrhage.

Anti-hemorrhage material of medium strength was given orally in repeated doses for ten days. No plugging was done, as this had never proved satisfactory for this patient. Loose wisps of cotton-wool applied to the bleeding points were found to be more useful.

A year later the patient returned after having had five months' continuous oral egg-white treatment with a remarkable

improvement in his general mouth hygiene, even though he had had no dental treatment.

In the third case, a difficult extraction resulted in profuse and persistent bleeding which did not abate after two and a half hours, despite plugging with adrenalin, turpentine, alum and ferri-perchloride.

Egg-white coagulant (4 cc.) was then given orally in water. About twenty-five minutes afterward, a sudden thickening of the blood was noticed and the blood clotted in the mouth. But as soon as the patient removed her tongue bleeding recommenced. Under anesthesia 2 cc. of the egg-white coagulant was injected intramuscularly, and the bleeding stopped.

\*This derivative is not yet available commercially. For treatment in the experimental cases cited here the egg-white material was made according to Doctor W. A. Timperley's formula by Doctor Helen Wright of Farnborough Hospital, England.



# Elimination of Variables in Amalgam Manipulation

HAROLD C. KILPATRICK, D.D.S., Yonkers, New York

## DIGEST

Variables in handling amalgam can be controlled by employing certain mechanical aids suggested here. Better amalgam restorations will be produced by the use of (1) the American Dental Association's specified alloy; (2) correctly measured proportions of alloy and mercury; (3) consistent trituration with a suitable mechanical amalgamator; (4) non-contamination with perspiration and other foreign materials; (5) controlled application of controlled mechanical pressure, and (6) sufficient finishing.

THERE ARE many factors that influence the end-result of an amalgam restoration. Gordon<sup>1</sup> states that "chief among these factors are such things as the ratio of mercury to alloy used, length of time and rate of mixing in the mortar and pestle used. There are other important factors which contribute to the control of the physical properties of an amalgam, but the above are sufficient to prove an alloy that is carefully adjusted by the manufacturer may be made into a very poor quality amalgam by a careless or inexperienced operator."

## Variables

Variables may be enumerated as follows: (1) faulty and inconsistent manufacture of dental alloys; (2) faulty measurement of the proportion of alloy

and mercury; (3) inconsistent and faulty combining of mercury and alloy; (4) contamination of the mix with foreign materials which alter the flow and contraction beyond normal limits; (5) unstabilized pressure in placing the amalgam; (6) insufficient finishing of the set amalgam.

### 1. *Manufacture of Dental Alloys*—

The manufacture of dental alloys may be eliminated as a variable inasmuch as the American Dental Association has laid down specifications which have been followed by the majority of the dental manufacturers, so that any alloy on the approved list is acceptable.

The remaining variables all come under the individual control of the dentists who manipulate amalgams. The human element is so inconsistent in these five variables that this report will attempt to show how unchanging mechanical aids may eliminate the human factor to a great extent. For several years, restorations made with these mechanical aids have been observed with gratifying results.

### 2. *The Measurement of Correct Proportions of Alloy and Mercury*—There

are several methods by which to measure the correct proportions of alloy and mercury. The best according to our tests is the alloy scale having a variable scale that can be set to the manufacturer's correct proportions. Mercury is dropped by means of a medicine dropper directly from the mercury bottle to the mercury end of the scale. The alloy is carefully dropped at the other end of the scale and when it is balanced exactly the alloy end drops and the mercury automatically runs down a slot in the balance and joins the alloy. The properly proportioned mix may now be triturated. Allow me to state here that several types of alloy and mercury dispensers were tested and found to be inconsistent in their delivery of mixes.

3. *Trituration*—Trituration is an important determinant in overcoming faulty mixing of the mercury and alloy. Our tests included the use of both the mortar and pestle and mechanical amalgamators. After several years' observation of the end-results of these two methods, the mechanical amalgamator, properly handled, was found to give the most uniform and consistently satis-

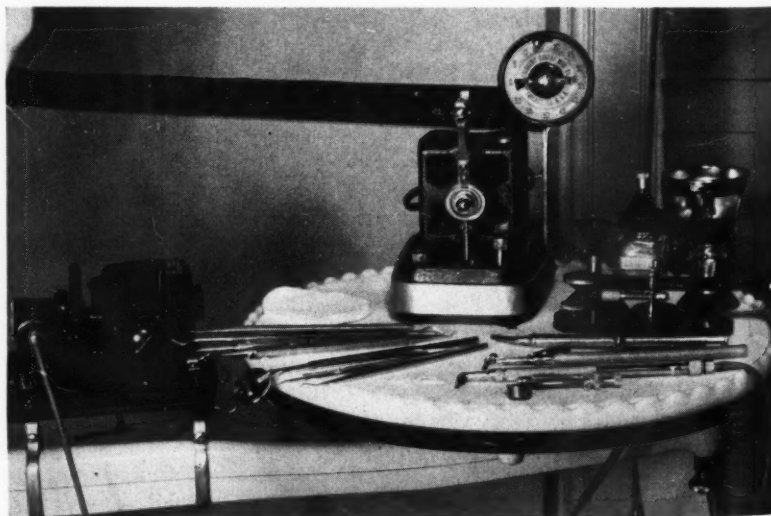


Fig. 1—Mechanical aids for insertion of amalgam restorations.

<sup>1</sup>Gordon, S. M.: *Dental Science and Dental Art*, Philadelphia, Lea & Febiger, 1938, page 524.

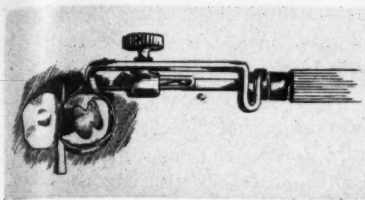


Fig. 2—Wedging the matrix at the gingival margin with a piece of toothpick.

factory results. There is no question that the mortar and pestle can give a good mix, but not consistently so. It is too difficult to try to mix a batch of amalgam in a mortar, using so many turns per minute with a certain pressure on each stroke and the necessity to tilt the mortar, so that each particle is incorporated with the main mix. The variables in this procedure are far too many when compared with the quick and efficient mix of the mechanical amalgamator. The average time for a mix is from six to eight seconds. An accurate, built-in timer is used.

4. *Transferring Properly Mixed Amalgam from Mortar to Cavity without Contamination*—Tests made at the National Bureau of Standards<sup>2</sup> confirm the fact that amalgam mulled in the hand or otherwise contaminated alters the flow of the finished restorative material. I have also found that many operators and dental assistants, in addition to having perspiration in their palms have the residue of skin balms and creams, which affect the mix and contribute to unwanted reactions in the finished restoration. The mix should therefore be transferred directly from the mixing mortar capsule to a piece of cloth known as a squeeze cloth. This can be done easily without using the fingers by removing the pestle from the capsule and giving the capsule a vibration of one second in the amalgamator, which incorporates the mix into one round mass. The transfer of the mix from the squeeze cloth to the cavity is done by means of metal amalgam carriers. In this way the mix is untouched by the hands.

Before taking up the next variable, the spheroiding of amalgam should be mentioned. According to Doctor Black,<sup>3</sup>

“... when a very sloppy amalgam is forced into a sharp angle, the mass will slightly withdraw from the angle immediately the pressure is released.” McGehee<sup>4</sup> states that “this may be remedied by avoiding soft, sloppy mixes, using proper proportions of mercury and alloy, and expressing remaining mercury during the mixing and packing.”

5. *Pressure in Packing Amalgam*—So much has been written about the packing of amalgam that it is sufficient

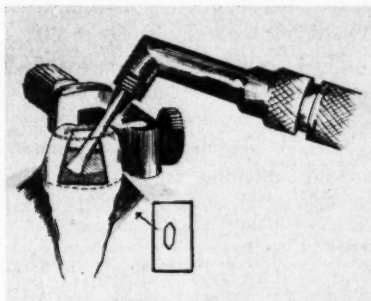


Fig. 3—Type of condenser point used to compress the almost dry amalgam at gingival margin. Insert shows working surface of plugger point.

to say that many methods have been tried, ranging from placing the mix without any pressure to extreme packing pressure. The technique recommended here is a middle road suggestion. Most tests were made in the mouth and observations made clinically.

The variable of pressure in packing an amalgam restoration is controlled by using the motor driven, hydraulic, mechanical condenser. The prepared cavity is blocked off by means of a rubber dam or by cotton rolls, and if it is a compound cavity, the matrix is reinforced at the gingiva with a wooden wedge. These wedges can be made from toothpicks or cut from orangewood sticks. They must hold firmly at the gingival margin. The mix for an average size compound cavity is divided into eight equal parts. The first step differs from most standard techniques:

a) The first of the eight parts of the mix is picked up from the squeeze cloth and placed in another squeeze cloth by means of a pair of college pliers.

b) Here it is squeezed almost dry and then picked up with the amalgam carrier and placed in the axial portion of the cavity.

c) The pressure in the condenser is set for a medium heavy blow and for three-quarter speed.

d) With a suitable point in the contra-angle handpiece, this first piece is condensed into place for from three to five seconds. Do not push on the handpiece; let the handpiece do the work. The rapid strokes of the condenser bring mercury to the surface immediately. Again, the air mallet is not pressed too hard; only enough pressure is exerted to allow the mallet to operate. This controls the blow and does not add the variable of the operator's pressure to the procedure.

e) The next part is treated in exactly the same manner, and so on, with each successive piece until the cavity is filled to a definite excess.

f) The last piece is squeezed dry and placed on top of the filling.

g) A pad of four thicknesses of a dental napkin, cut one fourth of an inch square and sewed together is placed over the top of the filling.

h) A larger plugger point is placed in the condenser and vibrated over the cloth for from fifteen to twenty seconds.

i) The bulk of the restoration is now trimmed to the approximate marginal ridge, and the wedge and matrix are carefully removed. The matrix is removed from buccal to lingual.

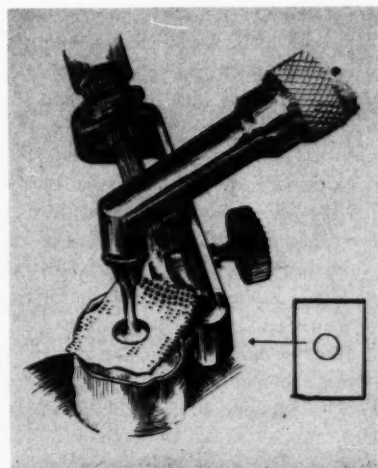


Fig. 4—Compressing amalgam through four thicknesses of cut dental napkin. Inset shows type of point for this operation.

<sup>2</sup>Souder, Wilmer; and Paffenbarger, G. C.: *Physical Properties of Dental Materials*, Report C-433, National Bureau of Standards, page 2.

<sup>3</sup>Black, G. V.: *Operative Dentistry*, Chicago, Medico-Dental Publishing Company, Sixth Edition, 2:317, 1924.

<sup>4</sup>McGehee, W. H. O.: *A Text-Book of Operative Dentistry*, Second Edition, Revised, Philadelphia, P. Blakiston's Son & Co., Inc., 1936, page 467.

j) The restoration is trimmed to occlusion and the patient is told not to masticate on it for two hours.

It will be noted that the condenser is not over-used. A maximum of five seconds per condensation is necessary; over-condensation will cause a flaking of certain parts of the restoration.

This procedure is applicable to class II and MOD restorations. Class I and V restorations can stand more condensation, as there is no expanding wall of the matrix to be considered.

**Finishing of Set Amalgam**—The final variable is in the finishing. This should not take place until the restorative material has set for at least twenty-four hours. All amalgam must be polished to achieve the desired results. The National Bureau of Standards<sup>5</sup> warns that "Many dentists fail to grasp the importance of the polishing procedure. The polish tends to prevent local gal-

vanic action, adherent deposits and stains and the discrepancy in color relations which are so much emphasized by dark amalgam restorations in white teeth."

It is not necessary laboriously to carve fissures and anatomic features in the restoration.

Polishing is quickly and efficiently done as follows:

a) A carborundum stone is first run over the margins of the restoration.

b) A medium-grit cuttlefish disc is used to polish the interproximal areas.

c) A finishing bur is used to put in the sulci.

d) The whole restoration is given a high shine with rubber sulci discs and a brush with some whiting.

Skinner<sup>6</sup> observes that "occasionally a tooth containing an amalgam filling becomes darkened because of the metal-

<sup>5</sup>Skinner, E. W.: The Science of Dental Materials, Second Edition, Revised, Philadelphia, W. B. Saunders Company, 1940, page 340.

lic sulphides penetrating the dentinal tubules. Such a condition usually results from a faulty margin which allows leakage of saliva and acids between the restoration and the cavity wall." Dry, hard packing and good finishing along with non-contamination will help to prevent this discoloration. If these restorations are observed from time to time, it will be noticed how tight the margins remain and how the luster is maintained with little discoloration.

### Comments

It is advisable for the new operator to try the technique on models before attempting it on the patient. With a properly trained assistant, it takes less time to place amalgam restorations in this way than by any of the other methods. It will be noted in Fig. 1 that all the machines are mounted near the bracket table for convenient use.

Yonkers Professional Building.

<sup>6</sup>Footnote 2, page 33.

## Gastroduodenal Disorders: An Important Wartime Medical Problem

(An Abstract)

[W. H. Dunn: War Medicine, 2:978 (November) 1942]

THERE APPEARS to be an active controversy regarding causation and the reasons for the rise in incidence of gastro-duodenal disorders. It was known that there was an increase in the frequency of peptic ulcer in England, but physicians were not prepared to find so many men with histories of ulcer among the troops, so many men suffering relapses under the stress of army life, and the occurrence of ulcer in such a youthful group. The heavy army diet and poor cooking were advanced as explanations, but although these are undoubtedly factors, they hardly seem sufficient to explain the marked contrast between the incidence in the last war and that in the present war.

Some writers attribute the frequency of this problem to dental defect, but one may cite other studies which would show this to be of no unusual degree and certainly no more frequent a condition in British soldiers than was true twenty-five years ago.

Such authorities as Payne and Newman cite the low incidence of neurotic disorder among dyspeptic patients. In one report they placed the incidence as low as 3 per cent. This would seem to be absurdly low. In a later comment Newman hedged a great deal on this earlier estimate. Other writers found this factor of importance depending on orientation, with a roentgenologist reporting 11.53 per cent, a psychiatrist suggesting a high figure of 68 per cent and gastro-enterologists making either some general comments regarding the importance of anxiety or giving such a figure as that of Hartfall, who reported 60 per cent.

Alvarez and other American writers on gastro-enterology have repeatedly stressed the tendency on the part of a busy practitioner to confine his questioning to his own special interest or to a patient's specific complaint, with the consequent neglect of any investigation of the patient's total personality and

problems. This would seem to be a possible source for the wide discrepancy in producing or reactivating dyspepsia and particularly ulcers.

The importance of emotional factors has been increasingly stressed in the American literature with consideration of dyspepsias, and particularly ulcers, as a psychosomatic problem. Agreement is truly widespread concerning the importance of constitutional and environmental factors in the production of peptic ulcers and dyspepsia in general.

An interesting English article by Davies and Wilson presented a study of 200 patients with ulcer in whom it was established that 84 per cent showed well marked personality disorders. In another article the same authors reported on a study of 75 patients in whom hematemesis and perforation developed. In 63 of these patients they found unusual emotional tension was

(Continued on page 90)



## The Editor's Page

FEW DENTAL infections, even of the most severe nature, establish spontaneous drainage outside the mouth. Occasionally, however, a dental infection develops a cutaneous fistula or may express itself as a migratory abscess. Two recent publications discuss this subject. Wende and Solomon<sup>1</sup> point out that sometimes these cutaneous fistulas are mistaken for carcinoma. In their series of eleven cases they show external facial lesions as a result of infection in the mouth. Some of these lesions on examination show in their facial aspect a tendency toward malignant tissue; whereas that part of the fistulous tract close to the source of dental origin does not. That is to say, in the same lesion two different types of tissue response may be observed: externally, tissue that appears to be of a malignant pattern; and internally, tissue that shows inflammatory changes.

The precursor, according to Wende and Solomon, of all such cutaneous lesions is the dental alveolar abscess. The clinical picture is something like this: The patient gives a history of an acute alveolar abscess resulting from pulp degeneration or he shows on roentgenologic examination a pulpless tooth or teeth or retained root fragments or an area of residual infection. There may be no local manifestations whatever reported by the patient. The patient may present himself with a draining facial fistula and give no history of dental disturbance. In all such cases that come to the observation of a physician first, a dental examination should be ordered to search for the foci from which these cutaneous lesions may spring.

In children the mechanism may be acute. A dental infection may quickly establish a fistulous tract and break through to the face. Such external lesions in the child should never be mistaken for another and much more serious condition; namely, cancrum oris or noma.

The dangers of acute alveolar abscesses draining externally are known. Such spontaneous opening frequently produces hideous scars, the so-called crow-foot scar, having an irregular outline and adherent scar tissue, usually depressed to present an exaggerated dimple-like appearance.

The other report of recent date is by Elliot<sup>2</sup> who describes a migratory abscess of the jaw. He points out that a simple dental alveolar abscess may not always seek external drainage and that occasionally such abscesses migrate into deep and more complicated tissues. Elliot believes that these migratory abscesses are likely to develop because of the arrangement of the muscles about the face and jaws which sometimes actually draws infection into deep tissues by their contraction in function. In the case he describes the tissues in the whole right temporal fossa were involved in the abscesses. Here is his discussion of this case:

From a dental standpoint this case illustrated clearly how easily infection can remain in the soft tissues for weeks or even months, reappearing intermittently at various distances from the original site. The invading organism followed an unusual course for an infection of this nature. Upon the extraction of the upper right third molar, bacteria which are harmless in the oral cavity, were introduced to less bacterial-resisting tissues. . . . Dunning feels that prolonged infections of this nature originate from a lower molar extraction rather than an upper molar extraction. The close proximity of the masseter muscle to the lower area and its continual contraction and relaxation, obviously necessary to open and close the mouth, greatly facilitates the spread of any invading organism.

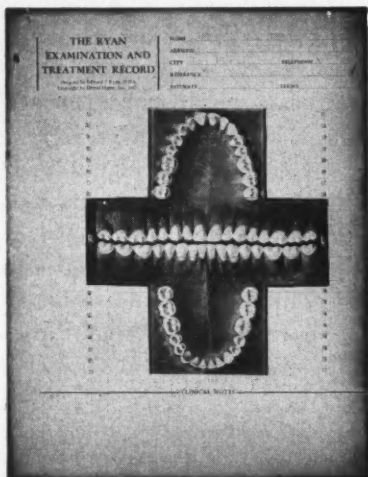
Again, we have it brought to our attention that dental infections are not conditions to treat too casually. The same medical supportive treatment and the same surgical judgment are required in treating dental infections as in treating infections elsewhere in the body. The dentist who treats an acute infection involving dental tissues as if it were some unimportant condition is opening the way for serious trouble for himself and for the patient.

Patients who have infections in the dental tissues should receive precisely the same treatment as those who have acute infections elsewhere. Such treatment includes rest in bed, forcing fluids, the possible use of the sulfa drugs, aseptic incision and careful drainage where indicated. To allow people to be up and around and risk excessive fatigue and exposure is a harmful practice in the presence of any infection. Dentists should know just as much about the modern and accepted medical and surgical procedures in dealing with an acute alveolar abscess as a physician must know who treats infection in other parts of the body.

<sup>1</sup>Wende, R. C. and Solomon, H. A.: Cutaneous Fistulas of Dental Origin, Arch. Dermat. & Syphil. 46:665 (November) 1942.

<sup>2</sup>Elliot, W. L.: Migratory Abscess of the Jaw, J. Canadian D. A. 8:587 (December) 1942.

# Suggestions for the use of The Ryan Examination and Treatment Record



**TYPES OF PENCILS**

Yellow.....	Mongol No. 867
Gray.....	Mongol No. 819
Red.....	Mongol No. 866
Blue.....	Mongol No. 865
Yellow.....	Castell No. 40
Gray.....	Castell No. 57

Mongol pencils are made by Eberhard Faber; Castell by A. W. Faber.

## SUGGESTED SYMBOLS

Each dentist may develop his own system of symbols but the following specific markings have been found simple and adequate:

**Soft Lead Pencil**—(a) Porcelain fillings are indicated by a pencil outline.

(b) Porcelain jacket crowns and bridges are shown by cross-hatching with lead pencil across the corresponding tooth or teeth on the chart.

(c) Missing teeth are blocked out with a soft lead pencil.

(d) Abrasions are represented with a soft lead pencil.

**Blue Pencil**—(a) Cavities are indicated with blue pencil.

(b) Advisable restorations are demonstrated with blue pencil.

**Red Pencil**—(a) A red line is used to indicate the presence of a root canal filling.

(b) A red outline shows the presence and position of an impacted tooth.

(c) Red pencil is used to represent pulp involvement.

(d) A red "X" is made across a tooth to indicate that its extraction has been advised.

(e) Pyorrhea pockets are represented in red along the crest of the alveolar ridge (and a notation is made at the bottom of the chart if extensive gingivitis is present.)

1. The Ryan Examination and Treatment Record may be had in pads of fifty charts each. These pads fit conveniently in a standard 9½ by 11½ inch loose-leaf notebook which may be purchased at a five-and-ten cent or variety store.

2. Alphabetical dividers may be made by using a ten cent package of plain white paper of the same size as the charts with holes punched at the same distances, and a fifteen cent box of alphabetical index tabs. The holes are reinforced.

3. It is a good plan to keep a blank sheet of paper between the charts to prevent possible smearing of crayon or pencil markings; but this is not essential.

4. A fresh pad of charts may be kept ready for use in back of the notebook of active records.

5. The various types of restorations and their location in a particular mouth are shown with the use of polychrome pencils—gray, for amalgam; deep yellow, for gold. White pencil does not show up very well; consequently, porcelain may be indicated with soft lead pencil outlines or cross-hatching.

6. Spaces provided beside the quadrants with numbers corresponding to the teeth permit special notations concerning each tooth. As treatment progresses the blue markings indicating needed dentistry are erased, and the nature, location, and date of placement of each new restoration are recorded. Additional clinical notations are made if necessary in the space provided for that purpose below the chart itself.

7. It is essential to be consistent in any system of symbols or markings developed. To insure consistency, it is well to have a key page in the front of the notebook.

8. The exact record of conditions found in the average patient's mouth at the original examination can be completed in fifteen or twenty minutes, and the time it takes to keep a chart up to date is negligible.

9. When a chart is completed the necessary data (name, address, telephone, reference, estimate, and terms) are typewritten in the spaces provided at the top of the record. The date of the original examination is also recorded in order that the treatment dates (as shown in the quadrants at the sides of the chart) will be recognized as subsequent to the date of the original examination.

10. Provision is made on the back of the chart for bookkeeping records. This is merely for the convenience of dentists who wish to keep all records together, but may be ignored by dentists who have a satisfactory bookkeeping system which they need not discard or do not wish to discard. The Ryan Examination and Treatment Record may be employed as an additional or supplementary record to any established method of record-keeping dentists may have.

11. Although the Ryan Examination and Treatment Record was designed for the dentist's own convenience in his practice, the charts have been found to have a definite informative value in explaining conditions to patients. The charts are also particularly helpful in reporting dental conditions of patients to cooperating physicians.

THE DENTAL DIGEST, 1005 LIBERTY AVE., PITTSBURGH, PA.

Here is \$1.00. Please send me a pad of 50 Ryan Examination and Treatment Record Charts.

Dr.....Address .....

City.....State .....

If you have not ordered your charts, clip the coupon and mail with a dollar bill.

## DENTAL MEETING

### Dates

New York Society for Oral Diagnosis, regular meeting, Squibb Hall, New York City, March 17.

Women's Dental Society of New York, Spring meeting, Pennsylvania, New York City, March 18.

American Society for the Advancement of General Anesthesia in Dentistry, Spring meeting, 54 West 40th Street, New York City, March 22.

Thomas P. Hinman mid-winter clinic, Biltmore Hotel, Atlanta, Georgia, March 28-30.

American Association of Orthodontists, Chicago, May 3-6, 1943.

Cleveland Dental Society, annual Spring clinic meeting, Statler Hotel, Cleveland, May 10-12.

Missouri-Kansas Dental Societies, combined meeting, Municipal Auditorium, Kansas City, Missouri, May 11-13.

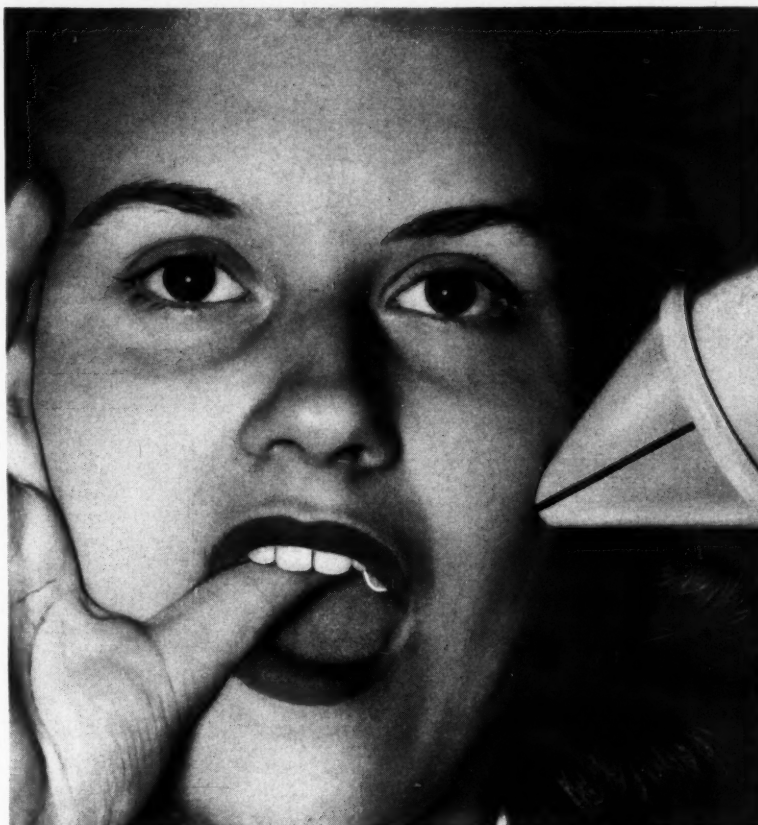
Indiana State Dental Association, annual meeting, Claypool Hotel, Indianapolis, May 17-19.

Ontario Dental Association, seventy-sixth annual meeting, Royal York Hotel, Toronto, May 17-19.

North Dakota State Board of Dental Examiners, regular meeting, Gardner Hotel, Fargo, July 12-15. For information write to Doctor R. A. Andrews, Carrington, North Dakota.

Ohio State Board of Dental Examiners, regular meeting, Western Reserve University School of Dentistry, February 8-10. For information write to Doctor Earl D. Lowry, 79 East State Street, Columbus, Ohio.

FEBRUARY, 1943



## This War Year 1943 Demands Practical Preventive Dentistry

**B**ASED on the complete radiodontic examination, practical preventive dentistry is essential to keep America fit . . .

. . . to teach those new patients, now able to afford dentistry, that prevention today saves time and pain and money tomorrow . . .

. . . and above all, to save the time of the dentist serving here at home.

Eastman helps in these two ways: (1) provides a complete line of x-ray films . . . (2) makes sure that these films have unflinching

day-in and day-out uniformity. Hence, you can safely follow the standardized exposure and processing technique that makes radiography such a swift, as well as dependable, diagnostic tool. Consult your dental dealer. . . Eastman Kodak Company, *Medical Division*, Rochester, N. Y.

*Made together to work together...*

For best possible results from your Eastman films: (1) have your dealer deliver fresh Eastman Chemicals, powder or liquid, regularly; (2) when they are received, have your assistant replace all stale solutions.



*The great majority of all dental radiographs are made on  
EASTMAN FILM*





# **BUY WAR BONDS AND STAMPS**

## *Contra- Angles*



### **Tropical Medicine and Dentistry . . .**

IT MAY seem a far cry from dentistry to tropical medicine but there is a relationship. Thousands of young men are living under tropical conditions for which they are ill prepared by inheritance or past experience. Our troops in the green jungles of the South Pacific and the deserts of North Africa are fighting under conditions to which their bodies have no natural immunities. Most of our boys are second, third, or fourth generation Americans whose ancestors came from the Northern European countries. They do not carry in their tissues natural immunities to tropical diseases, such as are found among dark skinned equatorial people. These boys are living under trying conditions. Lack of sleep; exposure to all sorts of weather; constantly threatened by crawling, flying, squirming things carrying tropical diseases; much of their food foreign to their past food habits—all these factors add up to suggest that many of these young men will have their health undermined and in that undermining process, their dental tissues will suffer.

We do know that there is a relationship between robustness and dental disease; that people who are well nourished, well sustained, and at a high health level are not so likely to have disease of the dental hard or soft tissues as are people who have a poor inheritance or are poorly nourished or who have a low index of resistance. Wisely the Army has sent dental officers with the expeditionary forces, because we may expect that under the conditions of warfare—loss of sleep, lowered resistance, exposure—many chronic and low grade dental foci will show acute exacerbation. Many of these men will return

## BRICKS WITHOUT STRAW?

• Primitive hand-made bricks required straw for bonding material, and teeth cannot grow sound and strong without proper nutritional factors.

Deficiency of Vitamin A produces atrophy of the enamel-forming organ of the teeth and during their formative period probably outranks all other nutritional inadequacies<sup>1</sup> . . . Lack of Vitamin C results in spongy gums, loose, porotic teeth and resorbed dentin.

Moreover, hypovitaminosis D appears to be an important factor in the formation of dental caries<sup>2</sup>, and two of the B-vitamins—riboflavin and niacin—are necessary for the prevention of certain pathologic oral conditions, including glossitis, cheilosis, and stomatitis.

'Esdavite' Pearls provide all these important elements and Vitamin B<sub>1</sub> as well. Potency is adjusted to conform with normal requirements and the average prophylactic dose is one pearl daily.

Each 'Esdavite' Pearl contains: Vitamin A, 5,000 U.S.P. units; Vitamin B<sub>1</sub>, 1 mg.; Vitamin C, 30 mg.; Vitamin D, 500 U.S.P. units; Vitamin B<sub>2</sub> (riboflavin), 2 mg.; and Niacin amide, 10 mg. . . . Supplied in prescription boxes of 25 and 100 capsules. Sharp & Dohme, Philadelphia.

1. J.A.M.A. 111:2072, 1938—2. J. Nutrition, 15:547, 1938



## 'ESDAVITE' PEARLS

home badly undermined in health. They will present serious dental problems to us. No one can say what the exact relationship may be between tropical diseases and dental health, but we can be certain that anything that will undermine general well-being will endanger the dental tissues.

### More Than a Masticating Mammal . . .

It is an easy transition from the subject of tropical disease and its relation to dental health to the story of a physician who appeared at the Greater New York Meeting last December. Doctor Harold T. Hyman expressed the thought that "man is not alone a masticating mammal." It was Doctor Hyman's intent to emphasize that the interest of dentists should be wider than the mere mechanisms of mastication; that along with this function, man had other tissues, other personalities, and other values. Doctor Hyman pointed out the totality of the human organism in its behavior as a unit mechanism rather than its behavior in isolated parts. He showed, for example, that the epuli and

the hypertrophies of pregnancy are probably associated with some hormonal reaction. He could have drawn on other clinical phenomena to show that women who are subject to estrogen therapy often develop hypertrophy of breast tissue and malignant disease and that men with carcinoma of the prostate can often be cured by removal of the testicles, there being some relationship between the male sex hormones and tissue change in the prostate.

Many of us have seen what happens to the soft tissues of the mouth in patients undergoing treatment for epilepsy with sodium dilantin. In these cases the gingival hypertrophy is so severe that the teeth are often totally submerged in a mass of liver-like spongy tissue—all this adds up to show that the mouth tissues may exhibit the response to general disease and the mouth tissues sometimes show the response to general therapy.

### Dirty Teeth in Public Office . . .

The Governor of Puerto Rico, Mr. Tugwell, is under attack by some senators and by the *Chicago Daily Tribune*.



**ACRALAIN**

TRIUMPHS AGAIN

with

**PREMIXED**

Powders for Duplicating  
NEW HUE, VERI-CHROME  
and MYERSON Shades

+



**ACRALAIN**

12 Premixed Tooth Shades  
6 Basic Shades

**NOW**

EVERY possible shade variation can  
be obtained.

**ACRALITE**

for

**DENTURES of  
DISTINCTION**

Certification Accepted by  
Research Commission of A. D. A.

**ACRALITE CO. Inc.**  
257 W. 38th ST., NEW YORK, N. Y.



## HITLER TAUGHT ME PLENTY

"Old Shicklegruber didn't reckon with me when he and his gang started out to give the world a *New Order*. He didn't know that I could be plenty handy with tools that help make planes and other weapons. I can do a lot of useful things now that would have seemed impossible to me a couple of years ago. Yes, Indeed, because of Hitler and his stooges, I have learned a lot."

And she has learned more than how to handle tools skillfully. She has learned that good health has a very close relationship to production schedules. She has learned that unhealthy teeth are a hazard to general health and often impair efficiency.

In thousands of dental offices McKesson equipment for the control of operative pain is making dental treatment easier and more inviting for the men and women who man our production lines. In contributing to the health and efficiency of our war workers, McKesson pain control is also contributing to the future success of dental practices.

NARGRAF



EASOR

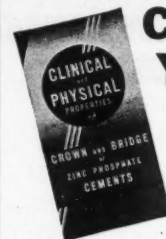
EUTHESOR

To make Tugwell look bad the *Tribune* carried a head, "Untidy Politico with Bad Teeth Is Tugwell's Aid." Then the story proceeds to show that this politico, one Luis Munoz Marin, had such an enduring fear of dentists that he carried rubbing alcohol with him on all occasions to anoint his cheeks. This is a form of therapy that has never been suggested in the dental literature! The *Tribune's* intent, apparently, was to show that Mr. Tugwell was associated with a bunch of careless, no good, stumble-bums. It is the association type of propaganda. It is a form of "Who is your bedfellow?" insinuation. If you associate with untidy, careless people the implication is that you are yourself that kind of person, under the theory of "Birds of a feather. . ."

But the *Tribune* need not go to far off Puerto Rico to talk about "untidy politicians with bad teeth." A study of the newsreels shows many of our own men in public life with clattering and whistling dentures. We can think of a couple of glamor-boy governors who would have been better off if some orthodontist had drawn their central incisors together. We can mention a whistling member of the President's cabinet who is missing the rugae in his full upper denture. And we can think of an ubiquitous woman in public life who could do pretty well with an anterior maxillary alveolectomy. This brings a rather difficult educational project before us. We appear before the school children of the land and tell them how important dental health, appearance, and comfort are. We point out the glowing toothiness of the glamor girls and the well-aligned teeth of the cinema he-men. Then these young folks whom we are trying to reach with the dental story look at the pictorial sections of the newspapers or see the newsreels and record the dental abominations of so many in public life whose careers bad teeth did not seem to impair. These kids are going to think that somebody has been spoofing them. If you can be a governor, a senator, or a president with such dental conditions, perhaps, after all, dental appearance isn't so important—unless you wish to enter the motion picture field.

(Continued on page 86)

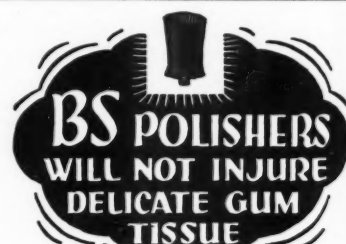
## Orthodontists Can Tell You Why!



• This free technical brochure gives valuable data on chemical and clinical aspects of Crown and Bridge Cements. Ask for your copy.

• Leading orthodontists prefer Ames Crown and Bridge Cement because it provides unusual adherence to tooth and metal surfaces and toughness to resist fracture. These properties are of great clinical value in cementations of all kinds. Whatever the character of the work, you can depend on Ames Cement to "stay put." It costs no more. The W. V-B. Ames Company, Fremont, Ohio.

## AMES DENTAL CEMENTS



Your Patients Will Appreciate Any Extra Effort You Make To Procure Them

Yes—despite demands of the U. S. Army—you can get BS Polishers—even though you may have to ask twice before having your order filled.

BS Polishers are:—(1) Made of soft, flexible rubber. (2) Gentle yet thorough in cleaning deep pits and fissures. (3) Cool in operation. (4) Splatter-proof. (5) Efficient in cleaning between teeth and under free gum margin without injury to delicate gum tissue.

These extra advantages will more than repay you for waiting and insisting on the world's largest selling polisher.

**Young** DENTAL MFG. CO.  
ST. LOUIS, MO.  
ESTABLISHED OVER 40 YEARS AGO



TRIM OUT AND PASTE ON ONE OF YOUR ENVELOPES . . .

FIRST CLASS  
PERMIT No. 1158  
(SEC. 510, P. L. & R.)  
PITTSBURGH, PA.

**BUSINESS REPLY ENVELOPE**  
NO POSTAGE STAMP NECESSARY IF MAILED IN THE  
UNITED STATES

POSTAGE WILL BE PAID BY

**DENTAL DIGEST, INC.**

1005 LIBERTY AVENUE

PITTSBURGH, PA.



NO POSTAGE REQUIRED . . . ORDER YOUR COPIES TODAY

THE DENTAL DIGEST  
1005 Liberty Ave., Pittsburgh, Pa.

Please send.....copies of ..... My check in the amount of  
\$..... is herewith. I will expect prompt delivery.

Dr. ....

Address .....

City .....

Dealer .....

(Or please use coupon on page 88)

*Why Not Consider a Planned*

## PATIENT EDUCATION PROGRAM?

*.... it's ethical, instructive, and economical to use copies of YOUR TEETH AND YOUR LIFE. Thousands of practitioners are using this book regularly . . .*

To date we can report sales of this ethical, educational booklet totaling over 165,000. Many dentists throughout the country are using it regularly.

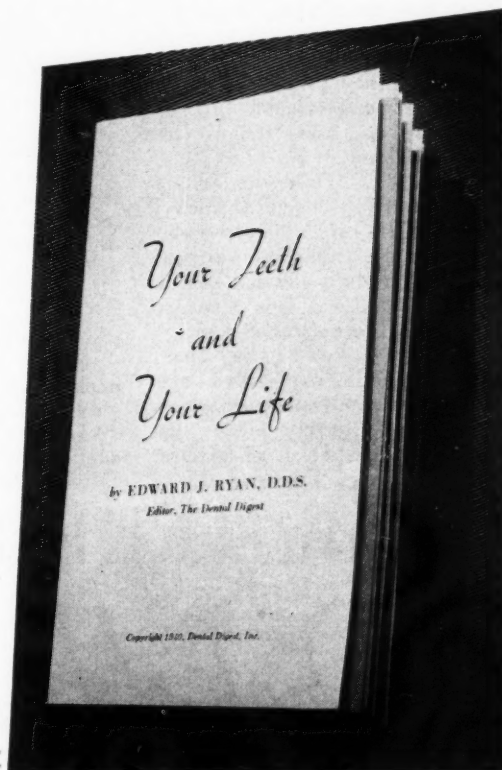
There are many reasons why you, too, should use *Your Teeth and Your Life* in your patient education program. You need only to observe the contents of the booklet to realize the importance of getting a copy into the hands of each of your patients. It is material they will read. It will benefit them. It will help you as patients are appreciative of the dentist who has their welfare in mind.

*Your Teeth and Your Life* explains in lay language the wisdom of proper and constant dental care. The charts in the booklet, printed in two colors, tell the essential story. The material can be used in many ways: (1) as a statement enclosure; (2) for reception room use; (3) for patient distribution upon dismissal; (4) for dental societies and Parent-Teacher Association groups; (5) for enclosure with patient recall cards.

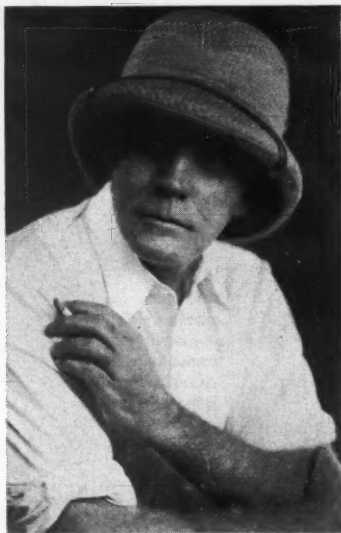
The prices are low—25 for \$1.00; 100 for \$3.00. Fill in the coupon above. Cut out the business reply form and paste it on one of your envelopes. Then no postage will be required. Get your supply now.

**THE DENTAL DIGEST**

1005 Liberty Ave., Pittsburgh, Pa.



In your **ORAL HYGIENE** this month



William S. Carrick, D.D.S.

## "ADVICE TO THE YANKEE SOLDIER"

That's the title of the lead article in this month's **ORAL HYGIENE**. It is written by a dentist-explorer, Doctor William Stanley Carrick, and tells dentists going into the service how to protect their health while on a tour of duty in the tropics and on remote islands. The author knows the jungle and tropics from personal experiences, and imparts valuable information to dentists going into service.

Doctor Theodore H. Terry's contribution, "How I Overcame Discouragement in the Practice of Dentistry" is unusual. He saw his practice slipping. He enumerates in a sincere manner the errors he made and how he overcame them, and soon increased his clientele before it was too late.

"You May Be Away a Long Time" is an appropriate wartime message. This article urges dentists, before entering service, to arrange for the competent administration of all financial matters, including insurance. Every

dentist will agree that this is sound, logical procedure.

As a change of pace from topics dealing with wartime problems, Doctor Philip Parker's suggestion "Praise the Lord and Help Your Alma Mater" merits consideration. He has an interesting suggestion for every dentist who wishes to aid his dental college.

"A Dental Officer Writes From the South Pacific" is a series of letters from Lieutenant John E. Carson. He gives interesting sidelights on life in the Samoa and Fiji Islands. The letters are published with the permission of Lieutenant Carson's father.

This month's pictorial lesson shows "How to Kill a Dental Practice" in a full page illustration that tells a straightforward story.

And, as usual, **ORAL HYGIENE**'s popular departments, "Ask Oral Hygiene," "Technique of the Month," "What Is Your Diagnosis?" "Laffodontia," "Dentists in the News," and "Military News" round out the issue.

### Auxiliary Medical Personnel . . .

If one-third the dentists of the country and one-half the physicians are to be in the armed forces there will be heavy demands on those who remain at home. We have repeatedly advocated in this column that dentists should prepare themselves to act as auxiliary medical personnel. We know that on active military duty, dentists are called on to act in wider capacities. They are expected to know more about the medical arts and sciences than they were required to know in civilian life. It is also true that the dentists who remain at home may have to care for civilians who remain at home, not only in civilian war emergencies (of which we hope there will be none) but in routine medical affairs, particularly if epidemics or catastrophes do strike. Dentists certainly should know more about general anesthesia, serology, and the principles of traumatic surgery. No one is advocating that dentists become short-course physicians. We are emphasizing that they remain dentists, but dentists prepared to operate in wider capacities when the need arises in civilian or military life—dentists imbued with deeper comprehension.

### Personalities by Mail . . .

I don't know that anyone has ever done a piece of research for a Doctor of Philosophy degree showing the relationship between the weather or other meteorologic conditions and correspondence. We do find that mail often takes a certain pattern. One day the letters we receive are mellow, friendly and constructive; the next batch may be turned out by dentists who are irritated, annoyed, or downright pompous. The first batch may have been written during a meteorologic cycle in which spirits were generally high and the sun was bright. The others, the depressing ones, came at a low ebb in the meteorologic cycle.

William Petersen, pathologist at the University of Illinois, following the footsteps of Hippocrates, has demonstrated a certain relationship between human temperament and human disease and weather conditions. Someone has a fine opportunity to pursue this further.

(Continued on page 90)

In your **FEBRUARY**  
*Oral Hygiene*

Still Available

# COGSWELL'S

"DENTAL ORAL SURGERY"

A text book for the general practitioner . . . and for the man who specializes. Price, \$10.

Through your dealer, or direct

THE DENTAL DIGEST 1005 Liberty Ave.  
Pittsburgh, Pa.



**LEE SMITH CERTIFIED IMPRESSION COMPOUND**  
INSURES BETTER IMPRESSIONS

Lee Smith Certified Compound is an all-purpose impression material highly efficient in general prosthetic work and a variety of other techniques. It requires less kneading to give you smoother texture for greater detail and its flaming and trimming qualities are unsurpassed. Your choice of convenient shaped cakes, 1/2 pound to the box . . . or tracing stick form, 15 sticks to the box.

Certified to surpass A. D. A. Spec. No. 3

**LEE S. SMITH & SON MFG. COMPANY** 7325 PENN AVENUE  
PITTSBURGH, PENNA.

See page 80 D.O.2  
THE DENTAL DIGEST  
1005 LIBERTY AVE., PITTSBURGH, PA.

Here is \$1.00. Please send 1 pad of 50 Ryan Examination and Treatment Record Charts.

Dr. ....  
Address .....  
City .....

See page 84 D.D.2  
McKesson Appliance Co.  
TOLEDO, OHIO.

Please send information concerning McKesson equipment.

Dr. ....  
Address .....  
Dealer .....

See page 84 D.D.2  
THE W. V-B. AMES CO.  
FREMONT, OHIO.

Please send copy of booklet.

Dr. ....  
Address .....  
City .....

See page 85 D.D.2  
THE DENTAL DIGEST  
1005 LIBERTY AVE., PITTSBURGH, PA.

Please send ..... copies of YOUR TEETH AND YOUR LIFE. Remittance is herewith.

Dr. ....  
Address .....  
City .....

See page 87 D.D.2  
WERNET DENTAL MFG. CO., DEPT. 7-B  
190 BALDWIN AVE., JERSEY CITY, N. J.

Please send supply of Wernet's Powder.

Dr. ....  
Address .....  
City .....

See page 88 D.D.2  
WILMOT CASTLE CO.  
1123 UNIVERSITY AVE., ROCHESTER, N. Y.

Please send information concerning Castle Lights.

Dr. ....  
Address .....  
Dealer .....

See page 89 D.D.2

HARRY J. BOSWORTH CO.  
1315 S. MICHIGAN AVE., CHICAGO, ILL.

Please send Alpha-Perles literature.

Dr. ....  
Address .....  
City .....

See pages 90-91 D.D.2

J. F. JELENKO & CO., INC.  
136 WEST 52ND ST., NEW YORK CITY.

Send me your Physical Properties Charts, Price List and other literature on Jelenko Golds.

Dr. ....  
Address .....  
City .....

See page 92 D.D.2

COLUMBUS DENTAL MFG. CO.  
COLUMBUS, OHIO.

Please send technic booklet.

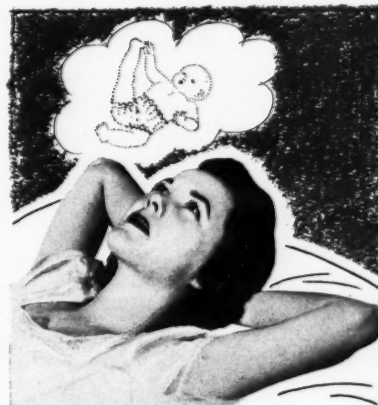
Dr. ....  
Address .....  
City .....

See third cover D.D.2

H. D. JUSTI & SON, INC.  
32ND & SPRING STS., PHILADELPHIA, PA.

Please send me a sample Fluorescent Acrynamel Jacket for \$1.50.

Dr. ....  
Address .....  
Dealer .....



## Alpha-Perles

Containing Chlorophyllin compound, biologically standardized Vitamin D concentrate, together with a proper balance of Calcium, Phosphorous and Colloid Iron, ALPHA PERLES is beneficial and many times corrective when prescribed as a supplementary diet.

Alpha Perles are indicated for pregnant and lactating mothers to meet the demands for an abundant supply of calcium, phosphorous and iron; provides essential elements necessary to the building and proper maintenance of healthy tooth structure.



Simple to take, readily assimilable, Alpha Perles—the medicinal food, overcomes dietary deficiencies. Write today for complete literature and clinical evidence.

HARRY J. BOSWORTH COMPANY  
1315 S. MICHIGAN AVENUE - CHICAGO



(Continued from page 86)

Pomposity in correspondence usually follows this pattern: The less a fellow knows, the more likely he is to know it all; the more he knows, the more likely he is to admit that he knows less than he would like to know. The men in dentistry, as elsewhere, who have made important contributions are perfectly willing to let their activities speak for themselves. The pompous little people write as if they had discovered the solar system or the circulation of the blood.

It doesn't take a trained psychiatrist to discern some measure of a person from the kind of letters he writes. I am not talking about handwriting or punctuation. We are talking about manners of expression. A letter on any subject inadvertently reveals a man's opinion of himself and reflects his own personality just as it mirrors his opinion of the person to whom he is writing.

#### Required Reading . . .

The January issue of *Annals of the American Academy of Political and Social Science* is devoted exclusively to "Nutrition and Food Supply: The War and After." This should be required reading for every dentist. We are going to hear a great deal more in the years ahead about the relationship between soils and agricultural methods and their effect on health. We should not forget that one of our own profession, Weston A. Price, was among the first to indicate the relationships that exist between soils and food and human disease. We know that the chemistry of soil varies and as it varies the product that grows upon it has different qualitative food values. The plants that grow are in turn eaten directly by man or by animals, but the nutrition of either is determined by the quality of the plants. Many of the animals that eat the plants are in turn eaten by man, so that the cycle would be: the soil→the plant→the animal→the man. Here is a significant paragraph from the publication cited:

"Through the aid of science new varieties of crops and new breeds of animals are being developed that more nearly satisfy the needs of civilized man. The farther these get away from the plants and animals of the natural

# 4 Jelenko Golds Which Meet

**JELENKO Special INLAY** CAST GOLD

**TYPE A SOFT**

FOR

**SIMPLE INLAYS WITH PROTECTED MARGINS**

**GOLD COLOR**

**per dwt. \$2.00**

Certified to Meet A.D.A. Specification No. 5

**MODULAY INLAY** REG. U.S. PAT. OFF.

**TYPE B MED. HARD**

FOR

**M.O.D. AND SIMPLE INLAYS**

**GOLD COLOR**

**per dwt. \$1.92**

Certified to Meet A.D.A. Specification No. 5

Use Gold . . . It Justifies Dentistry's Belief

## J. F. JELENKO

Manufacturers of Dental Gold  
136 West 52nd St. New York, N.Y.

landscape, the more care must be taken to protect them from diseases of all kinds, including nutritional deficiencies. If man is to have the benefits of modern science in production and in health, no gap can be left to chance. Soil is the very basis of all life, and no less care can be taken of its requirements for good production than of the plants, the animals, and the men it supports."

The "Good Earth," indeed, will be our refuge and our strength.—E. J. R.

#### Gastroduodenal Disorders

(Continued from page 78)

present for some days before these critical developments. This tension was generated by such matters as an increase of responsibility, financial reverses and illness or trouble in a family situation.

An important recent report by Mittelman, Wolff and Scharf offered convincing evidence for the rôle of emo-

**Eurocast**  
REG. U.S. PAT. OFF.

**TYPE C HARD**


**FOR**

**CARMICHAELS AND  
ALL ABUTMENTS**

**GOLD COLOR**

**per dwt. \$2.11**

Certified to Meet  
A.D.A. Specification No. 5



**JELENKO NO. 7**  
**CAST GOLD**  
REG. U.S. PAT. OFF.

**The PATRICIAN  
of Casting Golds**


**FOR**

**1-PIECE AND UNIT CASTINGS,  
CLASPS, BARS, SADDLES, ETC.**

**GOLD COLOR**

**per dwt. \$2.00**

Unsurpassed in physical properties,  
precious metal content and resistance  
to mouth discoloration.



Nothing is too Good for the Human Mouth.

**K CO., INC.**

Dental and Specialties  
New York, U. S. A.

*Memo:—  
Send your Scrap to Jelenko,  
through your dealer or direct.  
Accurate Assay, Prompt Report*

tional factors in the causation of peptic ulcer and gastritis. This is not to say that the emotional factors are the only important ones or that every dyspeptic patient needs psychiatric treatment. But the emotional factors do appear to be of fundamental significance in the majority of cases, and all should be studied with this possibility in mind.

With this orientation one cannot but conclude that the greater number of cases of dyspepsia in England must be

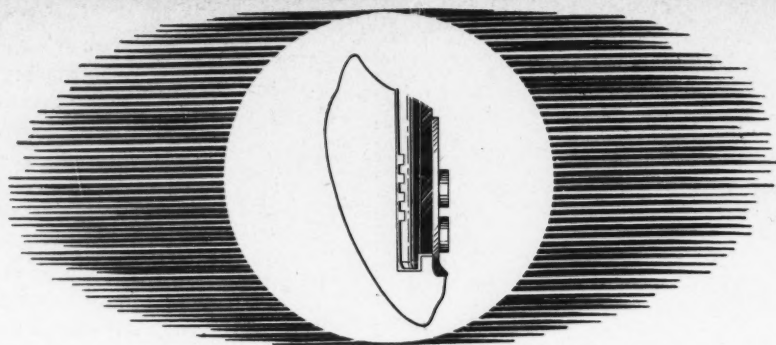
related to emotional factors growing out of the war situation and that with the remarkable decline in the type of neurotic manifestations so frequent in the last war, i. e., anxiety states and conversion hysteria, the emotional tensions generated in this war are appearing as psychosomatic disorders.

The frequency in the British Army may be related to a careless sorting of recruits, so that men were admitted of a markedly neurotic personality struc-

ture or with histories of ulcer. Another contributory factor may arise from the prolonged tension present in men who are mobilized for war but who have little opportunity to carry off their emotions in combatant activity. In a recent article Schindler pointed out the possibility that chronic intestinal disease would be an important problem in stationary warfare. In his opinion gastroduodenal ulcer will be a common disease in the United States Army. This state of unresolved tension would seem to be the emotional situation in England today. There has been stress recently on the importance of such emotional reactions as frustration and inadequately expressed resentment in engendering dyspepsia and reactivating ulcers. This attitude of frustration and resentment seems to be a rather well established emotional pattern in many of the cases of gastroduodenal disorder which have been studied in this country.

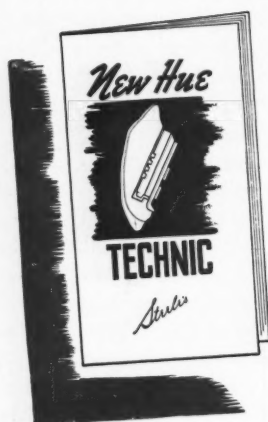
It would appear that there is no striking increase in the prevalence of digestive disorders among American troops—and certainly no striking incidence of gastroduodenal disease to compare with the English figures. But with the need for more men, with the tendency to lower the standards of examination by local selective service boards which has been present since January, 1942 and the possibilities for combat which now exist—particularly if it occurs under such conditions of warfare as have been present in England—one must be aware of this type of disorder as an important medical problem among the troops. Careful consideration must be given before admitting any recruit with a history of peptic ulceration. In addition, large numbers of military patients with dyspepsia will come from the psychoneurotic group as it is generally defined.

One may expect that these patients with gastroduodenal disorder will be found chiefly among two types of personality: One group will be made up of highly responsible, ambitious, driving men who have a strong desire to enter their services but will be inclined to worry about their home responsibilities. The other group will consist of men of a somewhat hysterical personality structure who are strongly attached to their families and are often characterized as "mamma's boys."

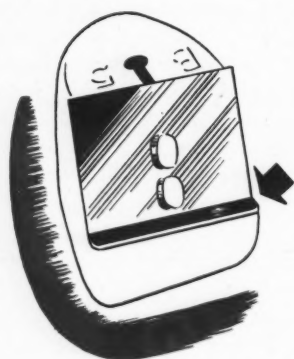


*Your reaction will be*  
**FAVORABLE . . .**

**YOUR RESULTS MOST SATISFACTORY!**



Always follow Steele's recommended technic when using Steele's New Hue teeth and backings. This simple procedure is concisely written in detail in our new technic book. Write for your free copy today.



In order to gain full esthetic effect and retain the beauty and accurate interchangeability it is imperative that the shoulder of the porcelain incisal fit precisely to its backing. **DO NOT GRIND THE SHOULDER!**

Use Steele's New Hue Anterior facings with Steele's New Hue backings and use them in anterior positions only.

**THE COLUMBUS DENTAL MANUFACTURING CO. COLUMBUS, OHIO**